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# California State Journal of Medicine

ISSUED MONTHLY: OWNED AND PUBLISHED BY THE  
MEDICAL SOCIETY OF THE STATE OF CALIFORNIA

Vol. XVI, No. 4

APRIL, 1918

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# California State Journal of Medicine

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VOL. XVI

APRIL, 1918

Number 4

## COMMITTEE ON SCIENTIFIC PROGRAM.

**VERY IMPORTANT.** Your paper, when read, becomes the property of the Medical Society of the State of California and may be published or refused publication in the Journal, according as the judgment of the Publication Committee dictates. The rules require that your paper as read must be left with the Chairman of the Section before which it is read. The new ruling of the Committee requires that a copy of the paper which you will read must be in the hands of the Secretary before it is read at the Society meeting. Therefore, please bring with you an extra copy of your paper to be presented to the Secretary before you deliver your address.

### DEL MONTE.

Every person who is expecting to attend the annual meeting at Del Monte on April 16, should make immediate reservation if he does not wish to court disappointment. The state society meeting is placed in the middle of the busy hotel season at Del Monte and rooms will be at a premium. There is every necessity for immediate reservation. Do it now. You can cancel a reservation if absolutely necessary later. You will probably be unable to secure accommodations toward the date of meeting. Railway rates are one and one-half the lowest regular one way fare, on the receipt-certificate plan from all points in California, provided fifty (50) or more are in attendance. When you buy your ticket to go to Del Monte,

pay the full fare and get a receipt-certificate. When you get to Del Monte, present this to the State Secretary to be signed and then when you get your return ticket, hand this receipt to the agent and he will give you a return ticket for one-half fare.

Do not fail to get the receipt-certificate, or to have it signed by the State Secretary, for if you do, you have no redress.

Every delegate should make it his first business to attend this session as matters of the utmost importance will come up for consideration. Questions have arisen in which every member of the Society is vitally interested and the delegates who represent large numbers of our members who cannot attend, should be sure to be present, even if at a personal sacrifice.

Secretaries of county units should make it their special duty to attend this meeting so that they may be in a position to explain to their members just what was done and why.

County secretaries can talk more effectively to their members on Society matters by having attended this meeting.

**Hotel Rates:** Hotel Rates are on the American plan.

Single room without bath, \$5.50 per day, one person.

Double room without bath, \$10.00 per day, two persons.

Single room with bath, \$6.50 per day, one person.

Double room with bath, \$12.00 per day, two persons.



**VOLUNTEER MEDICAL SERVICE CORPS.**

For the purpose of completing the mobilization of the entire medical and surgical resources of the country, the Council of National Defense has authorized and directed the organization of a "Volunteer Medical Service Corps," which is aimed to enlist in the general war-winning program all reputable physicians and surgeons who are not eligible to membership in the Medical Officers' Reserve Corps. It has been recognized always that the medical profession is made up of men whose patriotism is unquestioned and who are eager to serve their country in every way. Slight physical infirmities, or the fact that one is beyond the age limit, fifty-five years, or the fact that one is needed for essential public or institutional service, while precluding active work in camp or field or hospital in the war zone, should not prevent these patriotic physicians from close relation with governmental needs at this time.

Through the Committee on States Activities of the General Medical Board the matter of forming such a nation-wide organization was taken up last October in Chicago at a meeting attended by delegates from forty-six States and the District of Columbia. This committee, of which Dr. Edward Martin and Dr. John D. McLean—both Philadelphians—are respectively chairman and secretary, unanimously endorsed the project.

It is intended that this new Corps shall be an instrument able directly to meet such civil and military needs as are not already provided for. The General Medical Board holds it as axiomatic that the health of the people at home must be maintained as efficiently as in times of peace. The medical service in hospitals, medical colleges and laboratories must be up to standard; the demands incident to examination of drafted soldiers, including the reclamation of men rejected because of comparatively slight physical defects; the need of conserving the health of the families and dependents of enlisted men and the preservation of sanitary conditions,—all these needs must be fully met in time of war as in time of peace. They must be met in spite of the great and unusual depletion of medical talent due to the demands of field and hospital service.

In fact, and in view of the prospective losses in men with which every community is confronted, the General Medical Board believes that the needs at home should be even better met now than ever. The carrying of this double burden will fall heavily upon the physicians, but the medical fraternity is confident that it will acquit itself fully in this regard, its members accepting the tremendous responsibility in the highest spirit of patriotism. It will mean, doubtless, that much service must be gratuitous, but the medical men can be relied upon to do their share of giving freely, and it is certain that inability to pay a fee will never deny needy persons the attention required.

It is proposed that the services rendered by the Volunteer Medical Service Corps shall be in response to a request from the Surgeon General of the Army, the Surgeon General of the Navy, the

Surgeon General of the Public Health Service, or other duly authorized departments or associations, the general administration of the Corps to be vested in a Central Governing Board, which is to be a committee of the General Medical Board of the Council of National Defense. The State Committee of the Medical Section of the Council of National Defense constitutes the Governing Board in each State.

Conditions of membership are not onerous and are such as any qualified practitioner can readily meet. It is proposed that physicians intending to join shall apply by letter to the Secretary of the Central Governing Board, who will send the applicant a printed form, the filling out of which will permit ready classification according to training and experience. The name and data of applicants will be submitted to an Executive Committee of the State Governing Board, and the final acceptance to membership will be by the national governing body. An appropriate button or badge is to be adopted as official insignia.

**PHYSICIANS' COMMISSIONS AND THE A. M. A.**

In our June issue, under the caption of "There Be Land Rats and Water Rats," we called attention to the practice of the Marks Artificial Limb Company of offering to physicians who were in charge of unfortunates requiring prostheses a very large percentage of the cost of the appliances "for taking the measurements." We strongly attacked this procedure as being underhanded and crooked. Noting that the advertisement of these manufacturers was regularly carried by the Journal of the A. M. A., we entered into correspondence with its business manager, who takes the stand that the physician "is entitled to remuneration for such work from the manufacturer," but if the patient pays him for this same work "the physician is dishonorable if he accepts remuneration from the manufacturer." He also thinks that the doctor is justified in accepting a commission provided "he lets the patient know that he has done so."

Not at all! We know, and the business manager of the A. M. A. knows, that when a manufacturer offers a physician 20 or 25 per cent. of a limb that costs two hundred dollars he does it for just one reason. He wants the business. And we also know that the doctor who accepts a commission does not let his patient know it. Will any such manufacturer let a representative of the A. M. A. see the ledger accounts of these men? Will he furnish a list of those physicians to whom he has paid commissions? Will any of the physicians who have accepted such commissions state when, and how much he received? Of course not. He accepts a commission of this magnitude for what there is in it. He wants the coin.

It would be interesting to have the manager of the A. M. A. secure such information and publish it.



### THE MENTAL HYGIENE MOVEMENT IN CALIFORNIA.

Physicians in California should be conversant with the excellent activities of the California Society for Mental Hygiene, a state branch of a national organization which is giving effective and sadly needed service. The mental hygiene movement is well described as a well-organized endeavor to reduce the alarming amount of mental impairment in the United States by making public careful statements of the causes of mental disease, by securing earlier medical treatment, and by preventive social service with individuals threatened with mental breakdown. The movement also includes a survey of institutions caring for the insane for the purpose of determining the best means for improving standards of care among the 200,000 and more sufferers from mental disease in the United States. The prevention and proper care of mental deficiencies is an important feature of the program.

The California Society is working through various committees covering the following activities: 1. Committee on public meetings. 2. On mental hygiene in national defense. This committee has the important function of trying to segregate feeble-minded girls who would be a menace if allowed at large in the neighborhood of military camps. It is also concerned with the psychological examination of recruits and the selection of men for duties requiring special psychological qualifications as for example, the aviation service. It is concerned with the psychological problems of shock, re-education, vocational training, recreation in the Army and Navy, and the problems arising from emotional instability, fear and self-control. 3. On the commitment of the insane. This committee seeks to secure proper recognition of the fact that the insane are sick and should be treated as sick and not as criminals. 4. On the establishment of a State psychopathic hospital for the care and preventive treatment of acute and curable insanities. 5. On the study and vocational placement of sub-normal and super-normal children, with mental tests to determine their status. 6. On the psychological examination, care and treatment of delinquents. 7. On the establishment of county branches of the State Society for Mental Hygiene. 8. On the after-care of the insane. 9. On mental hygiene clinics. 10. On publicity. 11. (Proposed). On the care and treatment of drug addiction.

Let each physician read over this list and see for himself just what function of needed service such an organized program would provide in his own district. It is applicable as much in rural sections as in the cities and towns. The problems are different but the needs are equally great. There should be a branch of this State society in every county in the State, and physicians should be the first to recognize the prime importance of having a well-organized mental hygiene society in their own district.

Physicians should recognize this for several reasons. Among these reasons may be mentioned the effective service that the mental hygiene movement is rendering in driving out the narrow cults and sects of healing so-called, which thrive on ignor-

ance and improper mental training. This is worthy of contemplation. This is, too, aside from the direct results of social, moral and physical improvement which follow such activities as here outlined. The physician in war-time, vastly more even than in peace-time, must have his public conscience sensitive and feel his inherent obligation to serve the community in a public and constructive capacity as well as simply in efficient private medical service.

### MEASLES EPIDEMIC.

Never before in the history of the state, according to Dr. W. H. Kellogg, Secretary of the California State Board of Health, have measles and German measles been so prevalent. During 1917 there were 23,500 cases of these diseases reported to the State Board of Health, and during January and February of this year no less than 9,000 cases of these diseases have been reported. While nearly all cases have been of a very mild type, occasionally the disease has appeared in a very severe form.

Since most fatal cases of measles occur in children under five years of age, parents should take special care in protecting very young children from becoming infected. The best way to control measles is to isolate all cases as soon as suspicious symptoms occur. The chief difficulty in the control of the disease lies in the fact that it is more "catching" in the early stages, before any rash appears. Prompt isolation, however, helps to reduce the prevalence of the disease.

The State Board of Health does not advise closing the schools during an epidemic of measles, provided a system of inspection of school children is maintained. The best results are obtained through keeping the schools open and excluding all pupils who show any early symptoms of illness, such as fever, sore throat, or the symptoms of a common cold.

The regulations of the Board require the isolation of all cases of measles and German measles. Health officers and citizens should comply with these regulations in order that the wide prevalence of these diseases may be reduced. The presence of measles among our soldiers will not help to win the war.

### DEAD BABY OR DEAD GUINEA PIG.<sup>1</sup>

Within the last few weeks there has been a fresh outbreak of denunciation from a few anti-vivisectionists, on account of statements made at a Commonwealth Club luncheon by Dr. T. W. Huntington, a member of the American Red Cross Commission to Italy and president of the American Surgical Association. It isn't so long since some American contributors to the Red Cross sought to enjoin the society from making use of some of its funds for research by vivisection. It is charitable to assume that some of the objectors don't know what they are doing; and one reason they don't know is that medical men are too prone to treat the objections and denunciations of anti-vivisectionists with silence, so that a large

<sup>1</sup> From the San Francisco Star.

part of the public has no opportunity to learn the truth.

The stock objections and absurd statements of anti-vivisectionists have been disproved scores of times, but refutation has no effect upon the professional objectors, for somewhere among them is an affidavit mill that seems to be kept pretty busy. The professional objectors cannot point to one step of progress, nor to one beneficent discovery that has been made by their efforts, nor "to a single disease that has been abated or abolished by them either in animals or man."

Curiously enough, the anti-vivisectionists, asserting their purpose and great desire to save pain and suffering to the lower animals, have never ceased their objections long enough to learn that vivisection experiments have been of untold benefit to the lower animals by enabling scientific men to find the causes, methods of growth and spread and—in some cases—the means of preventing such disease of the lower animals as tuberculosis, rinderpest, anthrax, glanders, hog cholera, chicken cholera and lumpy jaw, some of which diseases attack human beings.

Those who have given little or no attention to the subject may be interested in a brief résumé of some steps of progress that have been made by vivisectionists through the use of vivisection upon lower animals. Experiments on animals—the great majority of which escape physical suffering when experimented upon—have benefited human beings by leading to:

"The discovery and development of the antiseptic and, later, the aseptic method and thus the splendid results of modern surgery, and not only reducing the mortality but making comparatively safe operations on the stomach, intestines, appendix, liver, pancreas, spleen, kidneys and bladder; and the modern surgery of the brain, which has shown such beneficial results; and has enabled surgeons to operate with fair success and diminishing mortality upon the organs of the chest.

"The almost total abolition of lockjaw after operations and accidents, and the reduction of the mortality after compound (open) fractures from 66 per cent. to less than 1 per cent.; while the mortality after ovariectomy has been reduced from 66 per cent. to less than 4 per cent., and the death rate of hydrophobia has been reduced from 12 per cent. of the persons bitten to less than 1 per cent.; and the death rate of the epidemic form of cerebro-spinal meningitis has been reduced from 75 per cent.—and sometimes 90 per cent.—to less than 20 per cent.

"Reduction of the death rate of tuberculosis by more than 30 per cent., and reduction of the cases and spread of tuberculosis, for Robert Koch's discovery of the tubercle bacillus is the cornerstone of our modern sanitary achievements. Thus, but for experiments upon animals, we would still be in the dark ages of sanitation.

"Abolition of yellow fever, which no longer than thirty years ago was the dread and often the scourge of our Gulf and lower Atlantic States; and such diminution of the ravages of malaria that its abolition in this country is only a matter of time, and without the knowledge thus gained the death rate in the Canal Zone during the con-

struction of the Panama Canal would have been enormous, while actually it was less than in the most healthy parts of this country.

"Reduction of the death rate in diphtheria in all parts of the civilized world. In 1894, when the antitoxin treatment of diphtheria was begun, the mortality from the disease was 79.9 deaths per 100,000 of population, and by 1905 the death rate was only 19 per 100,000—or less than one-quarter of the mortality before the introduction of antitoxin.

"Almost total abolition of childbed fever, once the great peril of maternity, and reduction of the mortality from the disease, from five or ten and sometimes even twenty deaths in 100 mothers to one in 1250 mothers.

"Discovery of anti-typhoid vaccine, which has practically abolished typhoid fever in army camps.

"The marvelous results achieved by Dr. Carrel and other surgeons in the treatment of wounded men on the battle fronts of Europe, as direct results of vivisection experiments upon lower animals. Legs and arms are saved now that surgeons did not dream of trying to save in our Civil War, or even in the Franco-Prussian war, and lives are saved now that could not have been saved then."

We have made no attempt in the foregoing to give a complete list of the benefits of vivisection. It is no exaggeration to say that the field of future experimentation is as large in every direction as the field of past accomplishment, for there is constant progress; and in no department of medicine can it be said that further progress is impossible.

Mention has been made above of the benefits of vivisection to the lower animals themselves. It may be added that in 1914, when John D. Rockefeller gave \$1,000,000 to extend the work of the Rockefeller Institute to the study of *lower animal diseases*, in a laboratory to be established in New Jersey, the Governor of New Jersey was persuaded by anti-vivisectionists to veto the bill authorizing that humane work.

Some years ago the late S. Weir Mitchell visited the Anti-Vivisection Exhibition in Philadelphia, and after viewing the exhibits said to his guide: "Your exhibition is not quite complete. You should place here a dead baby and there a dead guinea pig with the motto, 'Choose Between Them.'"

#### DISTINCTION BETWEEN MEDICAL DEFENSE AND INDEMNITY DEFENSE FUND.

Owing to some existing confusion as to just what the Society does for a member accused of alleged malpractice, we shall endeavor, in a few words, to clarify the matter. One of the purposes of our Society, as defined by the Constitution and By-Laws, is to protect our members from imposition and defend them from groundless charges.

A member in good standing whose dues are fully paid, is entitled to the services of the Society's Law Department in his defense and to the payment by the Society of the court costs involved. This is termed Medical Defense. Compliance with our Medical Defense Rules is, of course,

necessary. While the Society thus furnishes the legal assistance and court costs, this does not mean that it undertakes to pay any judgment secured against a member.

A member in good standing, whose dues are fully paid, may also, at his option, join the Indemnity Defense Fund. As to such claims or suits arising out of his practice for services thereafter rendered by him, he is entitled to the protection of the fund as well, as defined by its rules, termed Coverage Rules. This coverage on a single claim is \$5,000, depending on the extent of the Fund and the priority of the claim.

Any member may also, at his option, secure insurance from as many insurance companies as he desires. A member not belonging to the Fund, but insured in one or more companies, must, if a claim is made or suit filed against him, elect whether his insurance company or the Society shall handle his defense. In such cases, the Society can give only general cooperation.

But, if a member is covered by the Fund, and is also insured, the Legal Department will actively handle the claim or case and participate in his defense with the attorneys for the insurance company.

We have no hesitancy in recommending all our members to join the Fund and to carry as well, at least one policy of insurance with an established insurance company.

#### EDITORIAL COMMENT.

An entertaining and vastly instructive booklet is published by Dr. Lulu Hunt Peters of Los Angeles under the suggestive caption, "Diet and Health, with Key to the Calories." It would be worth while for every doctor to have a copy, even though the booklet is designed for lay consumption. The attention of the obese is secured on the first page by the declaration that "in war time it is a crime to hoard food,—yet hundreds of thousands are hoarding food, and that one of the most precious of all foods. They have vast amounts of this valuable commodity stored away in their own anatomy."

The point is well taken and it ought to be considered a patriotic disgrace in these war times for any individual to exhibit or harbor undue embonpoint. While we doctors are thus preaching, let us turn a timely eye toward our own proportions. For charity begins at home and so should patriotism. Physical efficiency is a patriotic duty for men and women alike. Obesity is *lèse majesté*. Let us be patriotically thin. And read Dr. Peters' booklet.

Continuing, the author gives some excellent definitions, after this fashion. "Medical Trust,—The A. M. A., a powerful trust you can't get into unless you have a high preliminary education and are a graduate of a high-class medical college. Eleven years' training after the grammar school is their minimum standard now." "League for Medical Freedom,—In reality a league for medical ignorance. The opponent of the above-mentioned trust. Their standard,—any old kind of medical or religious training three months or longer, engrafted on any one who has the money to pay for the course. No education no barrier; in fact, these

make the loudest boosters for the league. In justice I must say that many splendid estimable people belong to this, not knowing these facts."

The medical profession of Great Britain, as a result of five years' experience, has expressed its approval of universal health insurance. A comprehensive inquiry has been conducted by a committee of the British Medical Association among all local branches and panel committees. Its report on the attitude of the physicians says: "The degree of unanimity so far disclosed is somewhat remarkable." This indicates a significant change of view on the part of the profession as a whole, since at the outset health insurance was "the most highly controversial subject that has ever been before the profession." The investigation shows that the Act is to-day regarded as a distinct gain to the profession as well as to the public health.

In the last annual report of the Secretary of the Interior, the Honorable Franklin K. Lane, occur these words: "The spirit of the people is the making of the nation. The extent to which a people can co-operate marks the point of civilization they have reached. The greatest outstanding fact of the past year is that under the crystallizing influence of a common danger and under the inspiring impulse of a common purpose, Americans are quick to come together." A sentiment surely worthy of all emulation among physicians, whose constant contention it should be, who best can serve and best agree.

The Publication Committee of the JOURNAL is glad to announce that the congestion of manuscripts on hand has been relieved and all papers submitted for publication will be considered on their intrinsic merits.

According to the figures of the last available census, that of 1910, New York's foreign born population numbered almost two millions. Of these, Russia contributed 483,580; Italy, 340,524; Germany, 279,242; Ireland, 252,528; Austria, 193,203; and other countries considerably less. According to the New York Department of Health, it thus appears that New York's Russian-born population makes a city nearly as large as Odessa; its Italian members are enough to populate Trieste and Venice combined; and its German constituency is larger than that of the city of Bremen. About one million of the population are Jewish.

It is important to remember that, while typhoid fever is a sanitary crime, it frequently devolves upon the physician to treat it, and the physician is responsible for doing his part to prevent its further spread. Home treatment is always undesirable and should only be permitted when hospital facilities are unavailable. Visitors should be excluded, stools and urine efficiently disinfected, and every member of the family and person in contact with the case, who has not had typhoid, should be vaccinated against it. Urine and feces should invariably be examined bacteriologically not later than the tenth day after normal temperature is established. This is of the utmost importance in order to control the carrier problem.





cranial go to the nasal ganglion (the sphenopalatine) and from thence innervate the blood supply of the entire nose, sinuses, heart, bronchi, stomach and intestines. The first, second and third sacral, through the pelvic plexus, supply the lower colon and other pelvic contents, including the genital organs (J. S. Frazer, Nasal Neurosis, Edinburg Med. Journal, August, 1917). It has been stated that it is impossible to separate the autonomic from the sympathetic; that they are antagonistic to each other, but that there should be an equal balance between them in order that the organs supplied should functionate properly; that if the autonomic side is over activated or irritated by some substance, i. e., secretion from some endocrine gland or protein, we have a vagatonia with excessive secretion and spasm; that if the sympathetic side is over-activated we have a sympathicotonia with no secretion and relaxation. In other words, spasmodic affections of the respiratory tract, hay fever, true or false, as well as asthma, come under the group of vagatonias and the ordinary vaso-motor rhinitis with alternating stoppage of the nose accompanied by relaxed membrane and no discharge, comes under the group of sympathicotonias.

It therefore seems to me that there must be a state of general hypersensitiveness due either to hereditary abnormalities in the endocrine glands, syphilis or focal infections, before local hypersensitiveness can develop in the nose. The local hypersensitiveness may be influenced by nasal abnormalities or deflected septa, but according to hay fever workers, Goodale, Oppenheim, Scheppegrell and others, this is rarely, if ever, true in pollinosis. Repeated doses of tox-albumin or proteids, be they pollens, food or animal hair proteids, seem necessary before local hypersensitization is accomplished.

This brings us to the consideration of the grouping of spasmodic vaso-motor disturbances, or anaphylaxis of the air passages into three types:

- \* 1. Inspired,
2. Ingested,
3. Bacterial.

The *inspired* are pollens, proteid particles from the air or dandruff of animals, horses, cats, dogs, sheep, cattle, guinea pigs and chicken feathers, face powders, orris root, flour, etc.

The *ingested* cover the entire group of food-stuffs, fruit, vegetables, breadstuffs, animal food, sea products, nuts, beverages, as coffee, tea, chocolate and alcohol.

The *bacterial*, focal infections from accessory sinuses, tonsils, teeth, gallbladder, appendix, intestines, etc.\*

#### REASONS FOR TAKING UP THE WORK.

About three years ago, following the reading of Goodale's article on "Anaphylactic Reactions in Horse Asthma and Allied Conditions," Talbot's article on "Egg Poisoning" and Cook's article on "Hay Fever," I became interested in the study of spasmodic vaso-motor disturbances of the upper and lower air passages. Shortly after the study of these articles I had a conversation with a Southern Pacific engineer referred from Los Angeles for treatment as to his lack of efficiency during

the supposed hay fever period. As a result of that conversation I concluded there was a decidedly economic side to the hay fever question, in so far as it concerned the Southern Pacific Company, and I therefore asked my chief, Dr. Frank Ainsworth, if he would send a circular letter out to the hospital staff of the entire system, to determine if possible the number of hay fever victims among the railroad employees reporting yearly for relief. It was found that five hundred cases reported yearly, and of this number about two hundred were located in California. These reports suggested that the statement made to the President of the American Hay Fever Prevention Association by the California State Board of Health was incorrect, that hay fever in the state was rare. True, it is difficult to get any idea of the percentage of population in the state who are hay fever sufferers and to what type (spring or fall) they belong. Apparently, however, the early spring cases are more common, especially in the towns of Chico, Woodland, Colusa and Oroville, while in the lower San Joaquin Valley the late summer and fall type seems to predominate. From the wide distribution and profusion of the flora, it suggests that the percentages will increase when the non-bacterial types of colds are studied more closely and when true hay fever sufferers are shown that some relief can be given them.

From the reports received, answering, "what plants were thought to be responsible for hay fever," the following grasses and plants were reported:

Blue grass, Johnson grass, velvet grass, orchard grass, timothy, wild oats, alfalfa, greasewood, giant ragweed, common ragweed, sagebrush, figweed, dandelion, locust, roses, lily-of-valley, orange, olive, sweetpea, mustard, tarweed, sunflower, coreopsis, clover, willow, wall flower, asparagus plant, tree of heaven, pines, almonds, prunes, cottonwood, balm of Gilead—32 in all.

The work of eastern men (Goodale, Oppenheim) suggests that the following list submitted by Cooke represents the hay fever producing plants in the eastern states. He divides them as follows:

*Type A.* Grammaeae, timothy, wheat, red top, low spear, sweet vernal, mullein, rye.

*Type B.* Flowers, rose, daisy, lilac, dandelion.

*Type C.* Trees and shrubs, locust, chestnut, pine, maple, privet.

*Fall type.* Ragweed, goldenrod, aster, chrysanthemum, nasturtium, clematis, spartina, sticata.

A careful study of the above lists forced me to the conclusion that the only satisfactory way to determine the flora responsible for hay fever in the west was to have made a careful botanical survey of the districts in California and Nevada where hay fever was known to exist, and I therefore first sent in July, 1916, a third year student of botany into the districts of Bakersfield, McKittrick and Hanford. The result of this study covered one hundred and twenty plants, grasses and shrubs. Following this, in September, 1916, I sent Professor Hall, Chief of Botany at the University of California, to Woodland, Colusa and Chico, where he made a very careful survey of the late summer and fall flora. In April of this

\* This compilation was made up from the Boston Medical and Surgical Journal.

year a similar survey was made of this same district for the spring flora. In June, July and August, 1917, a survey of Nevada was made by Professor Hall which included the districts of Reno, Goldfield, Tonopah, Elko and Ogden, Utah, and the S. P. right of way from Benicia to Ogden.

During the past winter a compilation of one hundred and twenty of the western flora was made, showing the known habitat of each, from the Mexican border to the Canadian line and from the Pacific Coast to Colorado. This vast and comprehensive work was done by Professor Hall and presented to me for the good of the cause.

It is now pretty generally understood that pollen fertilization is air borne, or insect carried. Dr. Scheppegrell, President of the American Hay Fever Prevention Association, has in his writings shown very clearly that the air-borne pollens are the principal offenders and that many of Cook's and Goodale's lists have little to do with the causing of hay fever except by direct inhalation of the pollen from the flowers. It is therefore to this class of air-borne pollen producers that our efforts have been directed during the past two years.

The western states seem in comparison to the eastern states in the production of hay fever provokers, to have been the dumping ground of the world so far as the flora go; and we have found in our botanical studies and biological tests several blue ribbon winners among the pollens as compared to the eastern ones, when it comes to their toxic properties.

The following is the list as compiled by Professor Hall of the most important hay fever producing trees, grasses and shrubs:

#### Coniferae.

- Cupressus, cypress (wind borne).
- Juniperus, including sabina, junipers (wind borne).
- Pinus, many species, pines (wind borne).

#### Gnetaceae.

- Ephedra nevadense, desert tea (wind borne).

#### Zygophyllaceae.

- Larrea tridentata, creosote bush (insect borne).

#### Salicaceae.

- \*Populus fremontii, fremont cottonwood (wind borne).
- Salix, many species, willow (insect borne).

#### Cupuliferae.

- Quercus, oak (wind borne).

#### Leguminosae.

- Robinia pseudacacia, locust tree.

#### Polygonaceae.

- Rumex conglomeratus, clustered green dock (wind carried).
- Rumex crispus, curly dock (wind carried).

#### Cyperaceae.

- Scirpus lacustris, tule (wind carried).
- Scirpus robustus, bulrush (wind carried).

#### Juglandaceae.

- \*Juglans hindsii, Northern Cal. black walnut.

#### Gramineae (all wind carried).

- Agropyron pseudorepens, false couch grass.
- \*Agrostis alba, red top.
- \*Andropogon halepense, Johnson grass.
- \*Avena, oats.
- \*Bromus villosus (maximus), broncho grass, or needle grass.
- \*Cynodon dactylon, Bermuda grass.
- \*Dactylis glomerata, orchard grass.
- \*Distichlis spicata, salt grass.
- \*Elymus condensatus, giant rye grass.
- \*Elymus triticoides, slender wild rye.

Gastridium lendigerum, nit grass.

\*Lolium perenne and varieties, ray grass.

\*Phleum pratense, timothy.

Sporobolus asperifolius, rough leaved salt grass.

Sporobolus depacuperatus.

\*Chenopodiaceae (supposed to be wind carried, but possibly by minute insects).

Atriplex bracteosa, salt bush (that from Woodland is same as atriplex rosea, red orache).

Atriplex canescens, shad scale.

Atriplex species, salt bushes.

\*Chenopodium album, lamb's quarters or white goosefoot, or pigweed.

Chenopodium ambrosioides, Mexican tea.

Chenopodium anthelminticum, wormseed.

Grayia spinosa, hop sage.

Salicornia species, pickleweed.

\*Salsola kali, Russian thistle.

\*Sarcobatus, vermiculatus, black greasewood.

\*Spirostachys occidentalis, iodine bush.

Suaeda species, sea blite, alkali blite.

#### Urticaceae.

Urtica holosericea, creek nettle (wind carried).

#### Amaranthiceae.

\*Amaranthus graecizans, tumbleweed (wind carried).

\*Amaranthus retroflexus, rough pigweed (wind carried).

#### COMPOSITAE.

##### Mayweed Tribe.

Artemisia dracunculoides, Indian hair tonic (wind carried).

Artemisia absinthium, European wormwood (wind carried).

Artemisia biennis, biennial wormwood (wind carried).

\*Artemisia californica, California old man (wind carried).

Artemisia frigida, pasture sagebrush (wind carried).

\*Artemisia heterophylla, mugwort (wind carried).

\*Artemisia ludoviciana, mugwort (wind carried).

Artemisia spinescens, bud brush (wind carried).

\*Artemisia tridentata, sagebrush (wind carried).

\*Achillea millefolium, yarrow (insect carried).

Anthemis cotula, mayweed or dog fennel (insect carried).

##### Ragweed Tribe.

\*Ambrosia psilostachya, western ragweed (wind carried).

Dicoria canescens (wind carried).

Franseria chamissonis (wind carried).

Franseria bipinnatifida (wind carried).

Franseria dumosa, sand bur (wind carried).

\*Franseria tenuifolia (wind carried).

\*Hymenoclea salsola (wind carried).

\*Iva axillaris, povertyweed, western elder (wind carried).

Iva nevadensis, Nevada ragweed (wind carried).

\*Iva xanthifolia (wind carried).

\*Xanthium pennsylvanicum, cocklebur (wind carried).

\*Xanthium spinosum, spiny clotbur (wind carried).

Franseria acanthicarpa, false ragweed (wind carried).

##### Aster Tribe.

Solidago californica, Calif. goldenrod (insect carried).

Aster exilis, slim aster (insect carried).

Chrysothamnus nauseosus, rabbit bush (insect carried).

Grindelia camporum, gum plant (insect carried).

\*Heterotheca grandiflora, telegraph plant (insect carried).

Isocoma veneta acradenia (insect carried).

Monoptilon helioides, desert aster (insect carried).

Solidago occidentalis, western goldenrod (insect carried).

##### Sunflower Tribe.

Encelia eriocephala, desert sunflower (insect carried).



*Helianthus annuus*, sunflower (insect carried).  
*Bidens pilosa*, beggar ticks (insect carried).  
*Bidens vulgata*, beggar ticks (insect carried).

**Sneezeweed Tribe.**

*Helenium puberulum*, sneezeweed (insect carried).

*Baeria chrysostoma*, goldfields (insect carried).

**Tarweed Tribe.**

*Centaurea melitensis*, Napa thistle (insect carried).

*Centrodamia fitchii*, Fitch's spikeweed (insect carried).

*Centromadia pungens* and var. *parryi*, spikeweed (insect carried).

*Hemizonia fasciculata*, ramosissima (insect carried).

*Hemizonia heermannii* (insect carried).

*Hemizonia luzulaefolia*, hay field tarweed (insect carried).

*Hemizonia virgata*, virgate tarweed (insect carried).

*Madia elegans*, *madia* (insect carried).

*Madia sativa*, Chile tarweed (insect carried).

*Centaurea melitensis*, Napa thistle, tarweed (insect carried).

*Centaurea acanthicarpa*, false ragweed (insect carried).

Note—Those marked \* have been tested out and found positive.

POSSIBLE HAY FEVER PLANTS, OF SECONDARY IMPORTANCE.

## 1. COMPOSITAE.

*Artemisia cana*, especially in Rocky Mountain states.

*Artemisia canadensis*, especially in Rocky Mountain states.

*Artemisia discolor*, especially in Rocky Mountain states.

*Artemisia pycnocephala*, along the coast.

*Artemisia rigida*, especially in Eastern Nevada.

*Baccharis pilularis*, coast hills.

*Baccharis viminea*, guatemote.

*Coreopsis* species, related to *Bidens*.

*Erigeron canadense*, horseweed, probably by direct inhalation only.

*Franseria*, a few additional species in Southern California.

*Gnaphalium* (and related genera), the everlastings, are perhaps wind pollinated.

## 2. CHENOPODIACEAE.

*Beta vulgaris*, beet.

*Eurotia lanata*, winter fat or cotton brush, Great Basin.

*Kochia americana* and *K. californica*, alkali flats of the interior.

*Nitrophila occidentalis*, alkali districts.

## 3. GRAMINEAE.

*Agropyron*, several species in addition to the one given but not abundant.

*Agrostis microphylla*, small leaf, redtop.

*Agrostis exarata*, white top, Nevada, etc.

*Beckmannia erucaeformis* (slough grass).

*Bromus rubens*, red brome.

*Digitaria sanguinalis* (crab grass).

*Echinochloa* (barnyard grass).

*Festuca* spp. (fescue).

*Holcus lanatus* (velvet grass).

*Hordeum*, several species, includes "Fox Tail," etc.

*Leptochloa imbricata* (slender grass).

*Panicum pacificum* (panic grass).

*Pleuraphis rigida* (gailleta grass), deserts.

*Poa annua* (walk grass).

*Poa brachyglossa*.

*Poa buckleyana*, Buckley's blue grass, especially in hay, Nevada.

*Poa pratensis* (Kentucky blue grass).

*Puccinellia airoides* (alkali meadow grass), deserts and Nevada.

*Sitanion*, several species, usually scattered but reported common in Goldfield.

Many more grasses occur and may be important

locally, but not abundant over large areas. In addition, the following cultivated grasses should be considered: Timothy, red top, oats, wheat, rice, rye, barley, indian corn, and kafir corn.

## CLASSIFICATION OF GRASSES.

## 1. Corn Tribe.

Indian corn (*zea mays*).

## 2. Sorghum Tribe (andropogoneae).

Sorghum (*andropogon sorghum*).

Johnson grass (*andropogon halepensis*).

Sudan grass (*andropogon sorghum* var.).

## 3. Zoysia Tribe (zoysieae).

Gailleta grass (*pleuraphis rigida*).

Curly mesquite (*hilaria cenchroides*).

## 4. Millet Tribe (paniceae).

Crab grass (*digitaria sanguinalis*).

Knot grass (*paspalum distichum*).

Barnyard grass (*echinochloa crus-galli*).

Millet, kafir corn, etc. (*panicum* spp.).

Bur grass (*cenchrus tribuloides*).

## 5. Rice Tribe (oryzeae).

Rice (*oryza sativa*).

Wild rice (*zizania aquatica*).

## 6. Canary Grass Tribe (phalarideae).

Canary grass (*phalaris canariensis*).

## 7. Bent Grass Tribe (agrostideae).

Red top (*agrostis alba*).

White top (*agrostis exarata*).

Timothy (*phleum pratense*).

Tawny beard grass (*polypogon monspeliensis*).

Water beard grass (*polypogon littoralis*).

Nit grass (*gastridium lendigerum*).

Bunch grass (*stipa pulchra* and others).

Rough leaved salt grass (true salt grass in Tribe X), (*sporobolus asperifolius*).

## 8. Oats Tribe (avenaeae).

Oats (*avena sativa*).

Wild oats (*avena fatua* and *barbata*).

Velvet grass (*holcus lanatus*).

## 9. Finger Grass Tribe (chlorideae).

Bermuda grass (*cynodon dactylon*).

Slough grass (*beckmannia erucaeformis*).

Gramma grasses (*bouteloua* spp.).

Slender grass (*leptochloa imbricata*).

## 10. Fescue Tribe (festuceae).

Fescue grass (*festuca* spp.).

Salt grass (*distichlis spicata*).

Orchard grass (*dactylis glomerata*).

Blue grass (*poa pratensis*).

Walk grass (*poa annua*).

Brome grass (*bromus tectorum*).

Broncho grass or needle grass (*bromus villosus*).

Red brome (*bromus rubens*).

Low tridens (*tridens pulchellus*).

Alkali meadow grass (*puccinellia airoides*).

## \*11. Barley Tribe (hordeae).

Barley (*hordeum vulgare*).

Barley grass (erroneously called Fox Tail), (*hordeum murinum*).

Ticklegrass or Squirrel Tail (*hordeum jubatum*).

Meadow wild barley (*hordeum nodosum*).

Rye grass (*lolium perenne*).

Wheat (*triticum aestivum*).

Slender wheat grass (*agropyron tenerum*).

Rye (*secale cereale*).

Giant wild rye (*elymus condensatus*).

Glaucous wild rye (*elymus glaucus*).

Slender wild rye (*elymus triticoides*).

Sitanion (*sitanion* spp.).

## S. P. RIGHT OF WAY.

## Sacramento Valley.

## Spring:

Sitanion,

Dock,

Wild oats,

Barley grass,

Meadow barley grass,

Bunch grass,

Needle grass,

Soft cheese,  
Canary grass,  
Ray grass,  
Johnson grass,  
Bermuda grass,  
Povertyweed,  
Cottonwood.

#### Summer and Fall:

Mugwort,  
Ragweed,  
Cocklebur,  
Lamb's quarters,  
Russian thistle,  
Salt bush,  
Salt grass,  
Povertyweed.

#### MODESTO.

#### Spring and Early Summer:

Johnson grass (*andropogon halepense*).  
Barley grass (*hordeum micronium*).  
Crab grass (*digitaria sanguinalis*).  
Cocklebur (*xanthium pennsylvanicum*), all seasons.

N. Cal. black walnut (*juglans hindsii*).  
Wheat and barley.

Cottonwood (*populus fremontii*).

#### Summer and Fall:

Russian thistle (*salsola kali*).  
Mugwort (*artemisia heterophylla*).  
West ragweed (*ambrosia psilostachya*).  
Barnyard grass (*echinocloa crus-galli*).  
Bermuda grass (*cynodon dactylon*).  
Biennial wormwood (*artemisia biennial*).  
Indian hair tonic (*artemisia dracunculoides*).  
Povertyweed (*iva axillaris*).  
Mexican tea (*chenopodium ambrosioides*).  
Pigweed (*chenopodium album*).  
Rough pigweed (*amaranthus retroflexus*).  
Tumbleweed (*amaranthus graecizans*).  
Spiny clot bur (*xanthium spinosum*).  
Indian corn (*zea mays*).  
Millet kaffir corn (*panicum*).  
Salt grass (*distichlis spicata*).  
Dock (*rumex*).

Following are common at Modesto but probably have little to do with hay fever:

Valley Oak (*quercus lobata*).  
Horseweed (*erigeron canadense*).  
Spikeweed (*hemizonia pungens*).  
Virgate tarweed (*hemizonia virgate*).  
Gum plant (*grindelia camporum*).  
Sunflower (*helianthus annuus*).  
Telegraph plant (*heterotheca grandiflora*).  
Alfalfa (*medicago sativa*).

Note—The above shows the general scheme of Botanical surveys of localities, and is given with the hope that it will stimulate others to study further the problems involved in the Hay Fever question in the West.

The botanical survey of the districts is of great value, in that one can more readily determine the probable offender and eliminate unnecessary testing. In some instances, however, it seems to be worth while to use an atmospheric plate or better to have the victim wear a Hitchins campaign button in which is mounted a microscopic cover glass. This is smeared with glycerine and worn in the locality where the hay fever attacks begin. The pollens caught thereon are readily identified by the microscope.

During the past two years we have had collected through the Botanical Department of the University of California, University of Arizona and through the U. S. Agricultural Experimental Station at Logan, Utah, one hundred and forty pollens, many of which have been used in experimental work.

#### BIOLOGICAL TESTS.

We have followed Goodale's method in the

preparation of solutions for testing purposes, except the addition of glycerine, one-half gr. by weight of pure pollen is ground up in a mortar with two drops of glycerine and two drops of normal salt solution for several minutes. Then one drachm of salt solution is added. This is allowed to macerate for several hours when enough alcohol is added to make one-half ounce of 1/16 alcohol by weight. After this has stood for several days the supernatant fluid is withdrawn and put in a sterile amber-colored bottle with a rubber cap. Tests are made on the flexor surface of the forearm, keeping one inch away from the bend of the arm. Wash gently with alcohol and make small scratches about 1 1/2 inches apart and about 1/8 inch long, care being taken not to draw blood. A little, however, makes no difference. The rubber caps are cleaned and a sterile syringe used. A drop is put on the scratch and rubbed gently with a glass rod. Clean the syringe and needle with sterile water and repeat with each solution to be tried. If a reaction occurs, it will appear inside of twenty-five minutes as a hive surrounded by a reddish zone. It may or it may not itch. For purposes of record, 1/4 cm. in diameter = +; 1/2 cm. in diameter = ++; 3/4 cm. in diameter = +++; 1 cm. in diameter = ++++.

The reaction showing the largest is the one ordinarily most active and usually the pollen representing this is sprinkled into one nostril in minute quantity. A more or less severe attack of hay fever is produced usually inside of sixty seconds which may last from three to twenty-four hours. This is done as a confirmation of the skin reaction.

#### SEROLOGY.

The sero-biological work, as done by Goodale, indicates that one pollen from a given order will suffice for all that order. His work on grasses, for instance, is confined to twenty-one, all of which reacted alike. These belong to eight species and eight occur in one species, twenty occur in California.

There are three hundred and twenty-five grasses in this state, fifty-three of which representing the most important, are divided into eleven species. It seems to me that a very careful testing of the more important of each of these species should be made, and the same thing done with the Artemisias, Chenopods, and ragweeds before his results can be accepted. While a patient sensitive to grasses may react to several, it has been seen frequently here that some may show one or two very large and intense reactions to the grasses known to grow in the patient's locality and the same patient may react in a lesser degree to a grass not growing in that locality. It would seem more logical to use the grass pollen from the patient's locality and the one giving the more severe reaction rather than the foreign one giving the lesser reaction. The same thing applies to Chenopods, Artemisias and Ambrosias.

During the past eighteen months I have seen seventy-six cases of supposed hay fever. Of this number

53 reacted positively to pollen proteid skin tests, 19 appeared to be due to focal infections,

- 2 reacted to horse hair proteid alone,
- 2 reacted to egg albumen alone,
- 2 showed urinary acidosis not associated with pollenosis.

Of the cases of pollenosis fourteen were treated with pollen extracts; ten began treatment two or three months prior to time of expected attacks. Of these, eight had 90 per cent. relief for the season. The other four were considerably relieved but no doubt were sensitive to other pollens not tried, but which our botanical survey proved to be prevalent in their territory. Two were treated until the end of the season, and naturally, results were not anticipated. Two kept up their treatment indifferently and while benefited somewhat, the result was unsatisfactory. In one instance, the patient, who lives at Klamath Falls, may have been sensitive to other pollens not tried. This can only be determined by either a botanical survey of his district or the identification microscopically of pollens caught on atmospheric plates.

The other case, a resident of Tonopah, was relieved early in the season. He was, however, indifferent as to the time of taking his injections and proved by later skin tests to be sensitive to other things discovered by Professor Hall in his August survey of that territory.

Several observers (Hitchins, Cooke, Koessler and some others) report from 60 to 75 per cent. of their cases cured in various ways. Perhaps this percentage will be higher when the cases are more carefully differentiated as to the causes of the anaphylaxis, pollenosis, food allergy, bacterial sensitization and disturbed endocrine glands, and with a perfected method of preparation and standardization, which will be freed entirely of the possibility of autolysis in the higher dilutions within a period of less than twelve months.

From the seventy-six cases seen, I wish briefly to give the histories of four in order to illustrate the difficulties involved in diagnosing hay fever:

Case 1. Miss G., age 27, resident of Nevada, says usually her attacks occur during August and September, though often in spring, but she has attacks of sneezing all year around. If she got in the dust or near certain flowers, sweet peas, roses, coreopsis, etc., she had attacks and also when she used orris root, face powder and sachet. Of the ingested foods, apples and strawberries seem to disagree with her, and if she eats walnuts she immediately gets an angio-neurotic swelling of the tongue. She was tested with thirty-six different pollens with negative results, tested with thirty-nine food proteins, and showed a marked sensitization to walnuts and slightly to cabbage, peas, cocoa; slight reaction to streptococcus. She gives a history of attacks of yellow discharge from her nose anteriorly and posteriorly principally from the left side. She showed some signs of internal gland disturbance, and was then referred to Dr. Moffitt for further investigation. She was sent back to me with the recommendation that the infection in the sinuses be cleared up. Both antra were opened and drained. Patient referred back to Dr. Moffitt, who put her on ovarian extract, one grain three times per diem.

She reports that she has gone all of her so-called hay fever season without any disturbance and seems to be in better physical condition than she has been for several years.

Case 2. Mrs. ——— consulted me in January, 1916, with a history of frequent attacks of sneezing, itching of eyes and stoppage of nose, and watery

discharge. These attacks were so severe that she would soak a kitchen roller towel containing two and one-half yards of material. It was possible to squeeze the secretion from the towel. She had a small pair of tonsils, some boggiess of the tubercles of the septum and also of the middle and lower turbinates. These areas were touched up with a monochloratic acid several times without relief. Calcium salts were given her without relief. Bicarbonate of soda, thirty grains four times a day, was given internally without result, this being given though no acetone was present. Finally in desperation, she was asked what she ate to excess, and replied eggs and grapefruit. The following day she was tested out with the white of egg and grapefruit, and gave a marked reaction to white of egg. Eggs were stopped, which was followed by a 50 per cent. improvement. She was then referred to Dr. Cooper, who reported that the young woman had a small goitre and some symptoms of hypothyroidism. She was put on small doses of thyroid and in a comparatively short time was relieved of all her symptoms. During the past year she has had frequent relapses owing to discontinuance of her thyroid and eating eggs. She has been told that her cure cannot be permanent unless eggs are entirely eliminated from her diet.

Case 3. Mr. L., a baker by occupation, consulted me September, 1916. He complained of difficult breathing with alternating stoppage of the nose; says he sneezes all the year but particularly when he is making bread. He eats a great deal of bread and potatoes. Examination of nose showed a high deflection of the septum. The bony structure of the lower turbinates seemed excessive and the nose unnaturally narrow. He also had large tonsils with cheesy material. These conditions were corrected without apparent relief. Skin tests were made for the grains and he was found active to wheat, barley, rice, potatoes and corn. His starch intake was materially reduced with considerable improvement. I am now contemplating an attempt to build up his immunity with an extract of flour.

Case 4. Doctor R., resident of Reno, has had hay fever so badly for twelve years that he contemplated moving to San Francisco to get away from his trouble. There is no history of asthma, bronchitis, or pneumonia in family. His attacks begin in June, are most severe in August and last until frost. He gets hives from eating melons. The odor of bay rum or eau de quinine makes him sneeze. He eats a great deal of bread, potatoes and rice. Has no trouble in his nose, but has diseased tonsils and a history of chronic appendix.

He gave a skin reaction to several of the chenopod family, sagebrush and ragweed tribes; also a slight reaction to horse hair proteids; slight reaction to wheat, rice, potatoes and casein. He was given injections of greasewood, mugwort and western ragweed in strengths beginning with 1/50,000 and increased to 1/5,000, and had absolute relief until August 15, when he had a severe attack. I tested him with four additional chenopods, Russian thistle, povertyweed, salt grass and red orache, and obtained reactions. These were added to his solutions and after the first dose complete relief was obtained until the first frost, which is the close of the hay fever season.

One of the principal problems to be met in the future handling of hay fever cases is the attitude of certain manufacturing drug houses who have invaded sections of the west with their pollen vaccines. I refer particularly to the Lederle Antitoxin Laboratory of New York City, which in a circular states:

"1st—Favorable result followed as a prophylactic against hay fever in 83% of cases.

"2nd—In the treatment of hay fever favorable results followed in 89% of the cases.



"3rd—Marked asthmatic symptoms were associated with 55% of the cases. The symptoms were relieved in 84.2% of the cases."

In a personal letter to me they state: "It is a carefully standardized vaccine from the pollens of timothy, red top, June grass, orchard grass, wheat, sorrel, dock, daisy, maize, ragweed, goldenrod, all of which are known to be important factors in causing hay fever in the spring, summer and fall. Hence our vaccine offers protection against each individual pollen mentioned, as well as against all the pollens collectively."

The Mulford Company puts out two preparations, one for the spring type and one for the fall type. Their mixture corresponds botanically to the Lederle. Now compare this list of grasses and plants with the list of flora at Tonopah and Goldfields as follows:

*Lederle Pollen Vaccines. Flora of Tonopah and Goldfield.*

Timothy,	Russian thistle,
Red top,	Red orache,
June grass,	Spiny salt bush,
Orchard grass,	Greasewood,
Wheat,	Sagebrush,
Sorrell,	Shad scale,
Dock,	Pigweed or lamb's
	quarters,
Daisy,	Kochia,
Maize,	Hop sage,
Ragweed,	Desert tea,
Goldenrod.	Salt grass,
	Pigweed,

and note that there is no botanical relationship between them. Nearly the same comparison can be made in other sections of the West.

Should not such commercialism be discouraged and some thought be given to develop a method which has for its main object the good of the patient? A preparation to be of value should be made with some thought of the district where it is to be sold. If not, physicians should realize at the start that no uniform results can be looked for.

The results of the work so far indicate:

1st. The value of a careful botanical survey of hay fever districts and a collection of pollens representing the principal flora of that district.

2nd. The necessity of careful biological tests with extracts of pollens from the principal flora and in some instances the use of atmospheric plates to find the unsuspected offender.

3rd. The necessity of removal of all focal infections wherever found, prior to treatment.

4th. The need of team work—i. e., the co-operation of an internist, neurologist, laboratory technician and laryngologist.

5th. That pollen therapy, to quote Hitchins, holds out promise of greater benefit to hay fever victims than any other method of treatment yet suggested.

6th. That treatment should be commenced at least sixty days before the hay fever season begins and should be continued at intervals during the hay fever period of the patient.

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## THE COLLOIDAL GOLD (LANGE) TEST IN DIAGNOSIS. U. C. HOSPITAL.

RICHARD W. HARVEY, M. D., San Francisco.

The readiness with which cerebrospinal fluid is obtained by lumbar puncture has led in recent years to a study of diagnostic methods applied to it. No study of disease of the cerebrospinal nervous system is complete without the valuable evidence derived from the application of the various tests to the cerebrospinal fluid, such as: the Wassermann test, the Noguchi butyric acid test, the Nonne test for globulin, the Fehling's reduction test, and the cell count. In 1912, Lange added to these the colloidal gold test. It is the purpose of this paper to record the application of this test to about one hundred fluids, to show its value as a diagnostic method in diseases of the central nervous system and to emphasize the im-

portance of applying it more generally in the study of our cases.

If to a definite quantity of colloidal gold solution a given quantity of sodium chloride solution be added, particles of colloidal gold slowly precipitate out, leaving a clear solution. Zsigmondy discovered that albuminous bodies prevent this precipitation. If, for example, a definite quantity of colloidal gold solution is placed in a beaker with a given quantity of an electrolyte such as sodium chloride, and a known amount of an albumin added, the colloidal gold solution will remain unchanged; in other words, the albumin has inhibited the precipitating action of the electrolyte on the colloidal solution. Zsigmondy further showed that of each albumin a quantity different from every other albumin is required to prevent the precipitation of the same amount of colloidal gold in a sodium chloride solution. This fact serves to identify the albumin, and it is possible to determine by the gold chloride reaction what albumin is present and in what amount. In the cerebrospinal fluid various albumins are present, and Lange attempted to study them by the application of this method. This is what he found:

A normal cerebrospinal fluid does not precipitate a colloidal gold solution in sodium chloride.

Syphilitic fluids produce a characteristic reaction which is different in paretic cases on the one hand and tabetic and cerebrospinal syphilitic cases on the other.

Fluids from suppurative cases and in brain tumor, hemorrhage, and other non-syphilitic conditions likewise produce characteristic reactions, but different from those in syphilitic fluids.

These facts are of great importance in the diagnosis of cerebrospinal disease. Without the reaction it has been possible by a study of the cells and the Wassermann test to differentiate between specific and non-specific disease of the cerebrospinal system. With the reaction, besides affording substantiating evidence for the interpretation of the other tests, it has become possible to differentiate cases of paresis from cerebrospinal lues and tabes, as well as to distinguish between specific and non-specific central nervous system disease.

In 1913, Sippy and Moody investigated the Lange reaction in the spinal fluid from 268 cases, using the Nonne test for globulin as a control. They strongly advocated its application in cases of cerebrospinal disease. Grulee and Moody at the same time reported nine cases clinically congenital lues and seven suspected cases, and showed that the Lange reaction confirmed cases with clinical signs of congenital syphilis. Lee and Hinton concluded that the test is more delicate than the blood Wassermann, fluid Wassermann, cell count, and globulin, and that it is typical for syphilis of the central nervous system. They believed it possesses an advantage in that it gives a reaction with pathological fluids other than syphilitic fluids; and they considered the margin of error in performing the test small. Weston, Darling and Newcomb found in its application to psychiatry a very valuable adjunct to the prevailing clinical tests. They found that in cases of clinical cere-

brospinal lues the fluid Wassermann was always positive and the gold test always positive. In paretic fluids the gold test was always positive. In dementia praecox, manic-depressive insanity, arteriosclerotic dementia, and epilepsy there was no typical reaction. In unclassified psychoses the fluid Wassermann and gold test ran a parallel course. Miller and Levy, and later Miller with several collaborators, have made a careful study of the reaction to determine, if possible, methods of eradicating the inconstancy of the results they found they had been getting. They observed that the gold test may be positive in cases in which all other pathological findings are absent, that it may occur in cases not clinically paresis, that in general paresis the absence of dementia does not argue against the value of the test, and that in congenital lues, except in juvenile paresis, the test should not be relied upon to the exclusion of other laboratory tests. They affirm that it does not replace other tests, but offers very valuable confirmatory evidence. Others in Europe and in this country have investigated the test in its application to spinal fluid. In general it is the opinion that the reaction is of great value in the hands of careful workers; but one and all agree that, while the test itself is simple, the preparation of a satisfactory indicator is extremely difficult and is practically the only bar to a more general application of the colloidal gold reaction.

In preparing the indicator the following reagents are used: a 1% solution of gold chloride; a 2% solution of potassium carbonate; a 1% solution of formalin. The chemicals must be chemically pure and the solutions must be made in distilled water. To prepare half a liter of indicator, 500 c. c. of freshly distilled water are placed in a beaker of Jena glass and slowly heated to 60° C. At this point 5 c. c. of gold chloride solution and 5 c. c. of potassium carbonate solution are quickly added to the water with a sterile pipette and the gas then turned on full until the solution attains a temperature of 95° C. The heat is now removed and 5 c. c. formalin solution added slowly with constant stirring. The solution which has remained colorless until the addition of the formalin now turns pink, then lilac, then light red, and finally deep red with just a glint of orange. The indicator thus formed should be clearly transparent by direct or reflected light. If it is purplish and smoky it is unsatisfactory and the attempt to prepare it should be repeated, there being no possible way of correcting it once the reduction has taken place. Experience has shown that only when the directions for preparing the indicator are implicitly followed may one expect to obtain satisfactory results. The glassware must be cleansed chemically, and the water used must be doubly or even triply distilled with an apparatus free from rubber connections. Such an apparently insignificant substitution as the use of a flask for a beaker in the preparation of the indicator may lead to a failure. If the solution is heated too rapidly failure will likewise result. Instead of formalin, glucose has been used as a reducing agent and Miller reduces with formalin

after the addition of a few drops of oxalic acid; but I have found the original method of Lange to give the best results if it be followed with the utmost care. It is obvious that the successful preparation of the indicator depends on the care of a skillful laboratory worker. Once the indicator is prepared the carrying out of the test is a very simple matter.

Eleven chemically clean tubes are set up and 1 c. c. of .4% sodium chloride added to each. To the first tube is added an additional .8 c. c. of salt solution and .2 c. c. of the spinal fluid to be tested. One c. c. is now removed from the first tube and placed in the second. By the successive removal of 1 c. c. from each tube to the next, dilutions of the fluid are prepared in geometrical progression from 1:10, 1:20, 1:40, etc., to 1:5120. The eleventh tube, containing only salt solution, is used as a control. To each tube is now added 5 c. c. of the indicator, and the tubes are set aside for eighteen hours.

The changes which take place in the tubes are most interesting. The reaction, we must remember, depends upon the prevention by the albumin in the spinal fluid of the precipitation of the colloidal gold in the presence of the electrolyte, sodium chloride. In the absence of these proteins precipitation takes place in varying amounts, depending on the dilution, so that the indicator assumes different colors in the different dilutions, by the clumping together of the small colloidal particles. The color changes vary from deep red to red-blue, to lilac or purple, to blue, to cloudy, to complete precipitation resulting in a clear tube. For convenience of expression in reporting the results of a test the changes are numbered from 0 to 5, 0 being the normal color of the indicator and 5 clear.

Having described with all possible brevity the preparation of the indicator and the performance of the test, let us study its application to about 100 fluids obtained in the examination of patients in the wards and Neurological Clinic of the University of California Hospital. To these cases are added a few obtained from private sources.

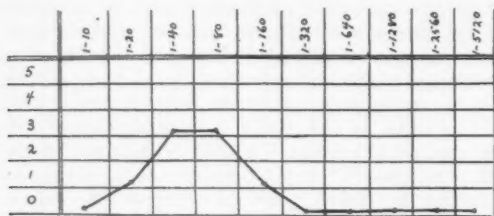


Chart I - Luetic Curve.

Chart I represents a typical curve constructed with the abscissae representing the different dilutions, and the ordinates the varying color changes. The apex is attained at dilutions 1:40 and 1:80 with a color change to blue. At the dilutions 1:320 the curve becomes coincident with the base line. This is a typical "luetic curve," found in cases of tabes, cerebrospinal lues, and congenital lues.

A normal fluid would be expressed by a straight

line through all dilutions coincident with the base-line, there being no clumping of colloidal gold in the normal case.

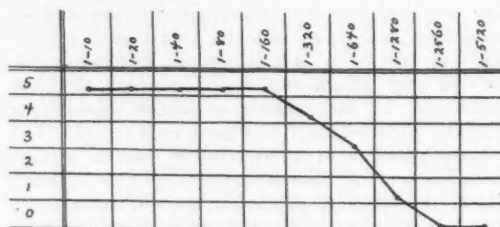


Chart II - Paretic Curve.

Chart II represents a typical curve obtained in a case of general paresis. Complete precipitation occurs in the low dilutions to a dilution of 1:160. In the higher dilutions varying degrees of inhibition result in successive color changes until the color of the indicator is reached at a dilution 1:2560. Comparing Charts I and II we see at a glance the possibilities of the test in differentiating the two conditions of which they are the graphical representations.

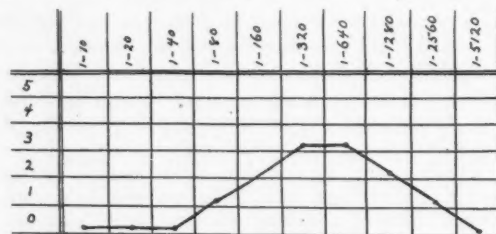


Chart III - Non-luetic Curve.

Chart III is a curve resulting in a case of non-syphilitic disease of the central nervous system. The apex is attained in the higher dilutions 1:320 and 1:640. Such a curve would be typical, for example, of tubercular meningitis.

An analysis of each of the cases studied would be very instructive, but for conciseness the records have been grouped so as to show the conformity of the color changes in each group with the type of reaction. The blood test and spinal fluid findings are likewise grouped so as to show a parallel with the colloidal gold reaction.

Table I shows the gold chloride dilutions giving the strongest precipitation in the different groups of cases, together with the average cell count for each group, the number of positive and negative Nonne and Noguchi tests, and the number of positive and negative blood and fluid Wassermann tests.

**Summary.** Table II. In seven cases which were clinically general paresis every case showed a paretic curve in the colloidal gold test, while only five gave the globulin and Wassermann tests positive throughout. The value of the Lange in diagnosis as shown in this group is further illustrated in the case of juvenile paresis. This case, clinically a congenital lues, with few neurological signs and no mental changes, has been observed in hospital over a period of several weeks during which time intensive treatment has been adminis-



TABLE I.

Diagnosis	No. of Cases	Strongest Color Change	Cells per 1 c.m.m.	Noguchi		Nonne		Wassermann Blood		Wassermann Fluid	
				+	-	+	-	+	-	+	-
General Paresis	7	1:10-1:640	Av. 45	6	1	5	2	5	2	5	2
Tabes	9	1:80-1:320	Av. 17	4	5	6	3	3	6	5	4
C. S. Lues	22	1:80-1:320	Av. 56	17	5	18	4	12	10	14	8
Syph. Meningitis	2	1:80-1:640	Av. 425	2	3	2	2	2	2	2	2
Congenital Lues	3	0	Av. 3	1	3	1	2	3	3	1	8
Juvenile Paresis	1	1:10-1:640	Av. 16	1	1	1	1	1	1	1	1
Latent Syphilis	1	1:80	Av. 1	1	1	1	1	1	1	1	1
Epilepsy	3	0	Av. 4	1	2	1	2	3	3	3	3
Malignant Lues	1	0	8	1	1	1	1	1	1	1	1
Secondary Lues	9	0	Av. 5	5	4	3	6	5	4	2	7
Paralysis Agitans	1	0	2	1	1	1	1	1	1	1	1
Typhoid	1	0	0	1	1	1	1	1	1	1	1
Malaria	1	1:160	7	1	1	1	1	1	1	1	1
Delirium Tremens	1	0	2	1	1	1	1	1	1	1	1
Dementia Praecox	1	0	8	1	1	1	1	1	1	1	1
Miscellaneous	16	0	Av. 6	5	11	6	10	16	16	16	16

TABLE II.

Diagnosis	No. of Cases	Positive Colloidal Gold	Positive Blood Wassermann	Positive Fluid Wassermann
General Paresis	7	7	5	5
Juvenile Paresis	1	1	1	1
Tabes	9	8	3	5
C. S. Lues	22	16	10	14
Congenital Lues	3	Negative 3	3	Negative 3
Miscellaneous	43	Negative 43	Negative 43	Negative 43
Secondary Lues	9	Negative 9	5	2

tered. The spinal fluid has been examined six times. Each examination shows a diminished cell count and a diminution in globulin and in the positive blood Wassermann; but the fluid Wassermann remains double positive in a dilution of 0.5 and the colloidal gold test is practically unchanged from what it was in the beginning. That the case is progressing in spite of treatment is evident from the pupillary changes. In prognosis, therefore, the test assists us definitely and is to be given incomparably more weight than a study of the successive cell counts and globulin reactions. Another case, clinically cerebral lues, with positive cerebrospinal fluid findings, showed a colloidal gold test giving a paretic curve. Several weeks later mental symptoms, such as loss of memory and depression, have begun to appear and we feel justified in anticipating the development of paresis. Another case gives an almost identical course, with a positive paretic curve.

In nine cases which were clinically tabes every case but one gave a luetic curve in the colloidal gold test. In contrast with this result, only about one-half gave positive specific findings in the blood and fluid examinations. The one case which did not show a luetic curve had received Swift-Ellis intraspinal treatment, KI, and mercury over a period of more than a year.

In 22 cases of cerebrospinal lues 16 showed a luetic curve while the Nonne globulin test was positive in 18, the blood Wassermann positive in 10, and the fluid Wassermann in 14. The luetic curve, therefore, is confirmatory of other fluid findings in most cases of tabes and cerebrospinal syphilis and is positive oftener than the other spinal fluid tests.

In three cases of congenital lues without neurological symptoms and signs, the colloidal gold test was negative and parallel with the other spinal fluid findings.

In 23 cases with negative spinal fluid tests the colloidal gold reaction was likewise negative.

In nine cases with secondary syphilis, five showed increased globulin and two a positive Wassermann

in the fluid, but the colloidal gold test was negative in all.

In one case diagnosed latent syphilis the spinal fluid findings were negative except for a positive Noguchi and a positive colloidal gold test.

Other miscellaneous cases to the number of about twenty were negative throughout.

Several fluids examined from cases of cerebral hemorrhage occurring months previously showed no characteristic gold curve. No case of tubercular or epidemic meningitis or of brain tumor is included in the series, but the testimony of others is strongly in advocacy of the colloidal gold test in these conditions.

**Conclusions.** Observations on this series support the opinion of previous workers, that while the colloidal gold test is valuable, it does not replace other tests but confirms them and in some instances assists in a prognosis. The test is valueless unless a satisfactory indicator is prepared. It is simple of execution, and the error is small if the precaution be observed of obtaining blood-free spinal fluid in clean, sterile tubes. In congenital lues the reaction does not add to the evidence given by other spinal fluid tests but it is of confirmatory value. In tabes the test, besides confirming evidence from other sources, may, when it gives a paretic curve, predict the development of a paresis. In tabes and cerebrospinal lues it may be positive in cases in which the Wassermann, cell count, and globulin are negative. In general paresis it is invariably positive and is of absolute value in differentiating between general paresis on the one hand and tabes and cerebrospinal lues on the other. In normal fluids it is invariably negative, if Miller's rule of counting all color changes below 2 as negative be followed. Where the laboratory facilities are such that care and time may be devoted to the preparation of a suitable indicator the test should be performed on every spinal fluid; the data for diagnosis is incomplete otherwise. In these days of scientific methods in medicine, when we are aiming at precision in diagnosis, I wish to advocate strongly this test,

at once simple and precise, in aiding in correct diagnosis and prognosis.

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#### Discussion.

Dr. E. A. Victors: There have been a number of objections to the colloidal gold reaction on account of the difficulty of preparing a proper reagent and that gold is one of the most unstable of colloids. In certain of the larger institutions where the reaction can be properly controlled and where fluids can be properly taken, it is a test of much value. The fluid should be taken with a properly prepared platinum needle and must be absolutely free from blood. I do not advise the colloidal Lange test as an ordinary laboratory procedure. Its quantitative or diagnostic factors are of importance although at times differentiation between tubercular meningitis and specific cerebrospinal disease can not be made.

Recently Emmanuel has suggested a colloidal mastic test. This is a far more stable colloid and exceedingly simple to prepare and the errors that creep into the gold test do not exist here. I am presenting at a coming meeting several hundred of these tests. The parallel between the mastic and Wassermann reaction is remarkably striking and it seems every bit as delicate as the colloidal gold, although not as differential.

Dr. Hans Lissner: I think Dr. Harvey's paper deserves considerable discussion, for the conclusions are well worth while. A diagnosis of paresis involves a prognosis so portentous that any test which will permit of our recognizing this disorder earlier than we can do so clinically, while there may still be a possibility of intensive prophylactic treatment, is exceedingly valuable. Whether the Lange test will accomplish this much desired result remains to be seen; but in any case we should be very sure that the reaction is done by competent hands.

Dr. Harvey mentioned one case that interested us very much—probably a case of juvenile paresis. A boy, seven years old, came to the children's department of Dr. Lucas, at the University of California Hospital, and a Wassermann in the blood was done because he had markedly unequal pupils. One pupil was very much dilated and did not react to light at all. The other pupil reacted to light when we first saw him, not very actively, but definitely. The Wassermann in the blood was XX, on the basis of XXX being strongly positive. His spinal fluid showed 54 cells, positive Nonne, questionable Noguchi and XXX positive Wassermann in .2 cc.

Here was a patient with an excellent mentality of seven years plus; emotionally normal, showing no psychic evidences of paresis. Moreover, the neurological examination showed no signs of involvement, except for the eye findings just mentioned. The Lange gold test, however, gave a marked reaction in the paretic zone. I might add too, making the case still more peculiar, that this boy showed no evidence of optic atrophy, which is so frequently present in juvenile paresis.

We began to treat him with intravenous salvarsan, iodides and mercurial inunctions, in order to observe what results could be obtained before resorting to intraspinal therapy. Parenthetically it

may be remarked, that had we given intraspinal therapy at once, the changes that occurred would have been ascribed to the "wonders" of intradural treatment, though in this case these questionable "wonders" were accomplished by more simple methods. This seven-year-old boy received, first—.45 Neosalvarsan, then .6; then .9; the full adult dose. Since that time he has had four more full doses of .9 neosalvarsan. We are not recommending such enormous doses, but it is interesting to place them on record. He vomited somewhat after the larger doses, but hardly more so than many adults.

Now for the results—the cells in the spinal fluid decreased from 54 to 3, Nonne and Noguchi disappeared, the Wassermann became negative in .2, questionable in .3 cc. His mentality remains normal. The pupil which was fairly active in the beginning is now barely reacting to light. Throughout all this treatment the colloidal gold curve remained strongly paretic.

Accordingly on the basis of one laboratory test alone, we are making a diagnosis of juvenile paresis, even though there are no clinical signs to substantiate it. It will be interesting to see what happens to this boy in the next two or three years.

Dr. H. G. Mehrtens: Dr. Harvey did not mention one of the things that arise as a confusing factor in the Lange test. If a patient has had previous intradural treatment, that has an effect on the fluid as far as the Lange test is concerned. In the neurological clinic at Stanford we followed this rather carefully and found some very odd results. In certain cases the Lange test is reduced steadily, finally becoming negative in the last of the reactions. But frequently, especially in paresis, the Lange test does not become negative, but becomes confused, takes on odd and atypical forms, so that if the patient should arrive and should not disclose the history of former treatment, and a lumbar puncture were done, the test would be of little or no significance. We had a case in point, in which the patient intentionally withheld the information of previous intradural treatment. The signs were perfectly evident, and a diagnosis of probable paresis was made. The Lange came back with a very atypical form, so much so it was not even typical for tabes, cerebrospinal syphilis or meningitis. Later on the patient volunteered the information that intradural treatments by both the Byrnes and Swift Ellis methods had been given, explaining the peculiar form of the Lange test.

Dr. Harvey, closing discussion: The observation of Dr. Mehrtens is certainly interesting. We had occasion to notice one case of tabes that had received several treatments of Swift-Ellis, and in which the Lange test was negative.

Dr. Lissner did not mention that in the case of general paresis, the mastic test was positive, corroborating the colloidal gold. We have been using the mastic test for some months at the University and are glad to know that a report on it will be made here.

#### WHY OPTICIANS OR OPTOMETRISTS OUGHT TO HAVE MEDICAL DEGREE.

(a) A general knowledge of the entire human body is necessary for the intelligent treatment of eye diseases.

(b) The majority of eye diseases are not to be cured by the mere fitting of glasses.

(c) Systematic and medical treatment is required in 70 to 90 per cent. of all eye diseases.

(d) Many diseases have their first or most diagnostic signs appear in the eye.—*Bull. of Fed. of State Med. Bds.*, Feb., 1918.

# PERMANGANATE REDUCTION INDEX OF CEREBROSPINAL FLUID.

By ERNST ALBRECHT VICTORS, M. D., San Francisco.

Mayerhofer<sup>1</sup> has applied an old oxygen consumed water test used as an index of contained organic matter to determine variations in the organic elements of cerebrospinal fluid in normal and pathological conditions. The number of c. c. of a decinormal potassium permanganate solution when boiled for ten minutes in a strong sulphuric acid solution, that is reduced by 1 c. c. of spinal fluid, is determined the Permanganate reduction index.

The field for the application of the reduction index appears to be limited to young children evidencing symptoms of meningeal irritation, and is of differential aid in determining a true involvement of the meninges and diseases other than meningitis but which appear meningeal. The inconstancy of cytologic findings and the difficulty of demonstrating causative micro-organisms in these borderline conditions, gives to this test a certain sphere of usefulness.

The reduction index is usually below 2 with normal fluids and the upper limit of normal fluids as determined by Mayerhofer is 2.3 and by Hoffman and Schwartz<sup>2</sup> as 2.5. In tuberculous meningitis is there a constantly high index, especially in the last portion of the fluid. In serous meningitis, on the other hand, the index is relatively lower and higher in the first portion. Hoffman and Schwartz report an index of from 2.5 to 5.7 in tuberculous meningitis, rarely above 2.4 in serous meningitis, usually above 3 in epidemic meningitis and between 2.5 and 3.3 in polyomyelitis in the acute stage. These authors also report a case of tumor of the cerebellum with the clinical picture of tuberculous meningitis in which the index was persistently below 2.

I am here presenting a small series of fluids in which the Permanganate reduction index was determined.

## PERMANGANATE REDUCTION INDEX.

Case	Diagnosis	Index
49557	Ep. Cerebrospinal Meningitis..	3.5
49604	Tuberculous Meningitis.....	4.2
49763	Tuberculous Meningitis.....	2.4
51193	Tuberculous Meningitis.....	6.1
50836	Brain Tumor.....	1.0
51285	Tetanus .....	2.7
27827 (SQ)	Tabes .....	2.5
19 (Ag)	Paresis .....	1.1
29078 (SQ)	Surgical—Spinal Anesthesia....	0.6
25258 (SQ)	Surgical—Spinal Anesthesia....	2.4
23703 (SQ)	Surgical—Spinal Anesthesia....	1.6
51115	Convulsions (?).....	0.9

1. Mayerhofer—Wiener klin. Wochenschrift. 1910, XXIII, No. 18, pp. 651.

2. Hoffman and Schwartz. Arch. Int. Med. 1916, Vol. 17, No. 2, p. 293.

# OBSTETRICAL ANESTHESIA.\*

By CAROLINE B. PALMER, M. D., Lane Hospital, San Francisco.

The intention in the present paper is to consider various means of controlling the suffering incident to childbirth without restriction to the subject of true anesthesia.

That the degree of shock caused by inadequate relief of pain during labor may have far-reaching consequences has been abundantly proved. Edgar says: "Possibly the majority of the highly civilized class of women are physically and mentally unfit to suffer an approach to spontaneous labor. Unless guarded from too much suffering women of this class experience a profound physical and psychic shock in their first confinement, from which some never fully recover."<sup>2</sup>

Hellman, in the American Journal of Surgery, says: "Labor if normal is physiological, but the suffering has always been considered something to be avoided as far as is commensurate with safety, and the need of this in practice is increasing with each generation. The fetal head is a trifle larger, the female pelvis a trifle smaller, and the mother's nervous system much less able to withstand the shock of labor."<sup>1</sup>

Since the time of Sir James Simpson, the best obstetricians have employed various anesthetics to relieve the suffering of labor, but until comparatively recent times little has been accomplished to safeguard the patient during the first stage, as early use of the anesthetics ordinarily employed, viz.: chloroform and ether, retards labor and their prolonged use is fraught with danger to both mother and child.

From the earliest times the question of therapeutic measures for the relief of pain has been hampered by superstitions and prejudices. Now we have shaken off some of the superstitions but the prejudices it is to be feared are still with us.

At present we are reaping the benefits of the research which has been stimulated by the recent agitation over the subject of "painless childbirth," and the final outcome will probably be to place the entire matter upon a solid foundation based upon the immediate and remote effects of the various drugs employed. When this time has actually arrived, we shall at least have the satisfaction of knowing whether or not our measures for the relief of pain do more or less harm than the pain itself.

Each therapeutic measure for the relief of suffering has been hailed as absolutely safe until a series of catastrophes has proved the contrary. Harm has resulted from the over-enthusiasm of the advocates of each measure and in many instances from the influence of commercial interests.

Most of us probably feel that notwithstanding the large amount of valuable work which has been done recently, we are still far from certain that we know the best means of controlling pain in the various phases of labor.

*Narcotics and Antispasmodics.*—Many authorities now agree in the use of some form of opium

\* Read before the Forty-sixth annual meeting of the Medical Society, State of California, Coronado, April, 1917.



and antispasmodics when necessary to relieve suffering in the first stage, the difference of opinion being mainly as to dosage, combinations of drugs and the length of time before expected delivery. It is generally recognized that the use of drugs which depress the respiratory centres is dangerous to the fetus unless given early enough to be practically eliminated before delivery takes place; also that the use of two or more drugs which are synergistic in action constitutes a much greater danger than the sum of the action of the drugs employed.

That the danger to the fetus is real when respiratory depressants are given so late in labor that their influence overlaps the expulsive stage has been shown experimentally as well as clinically.

Professor Jung reports: "The fact that many drugs are transferred in part from mother to child cannot be denied. Some of these, such as morphine, scopolamin, chloral hydrate, sodium bromide, chloroform, ether, and many others, have been shown to be carried over. The proportion of the drug usually found in the fetal circulation is small compared to the amount ingested by the mother, due to the fact that most drugs are rapidly eliminated from the maternal circulation.

The question as to whether or not a child can be killed by drugs administered to the mother must be answered in the affirmative. Efforts to give a painless labor by the use of ether, chloroform, etc., give proof of this. It is true that in many cases large doses of these drugs have been used and that nevertheless normal children have been born. But it is also true that in many instances mortality of the child has resulted in such a way that the drug must be held responsible.<sup>2</sup>

#### CHLOROFORM, ETHER, NITROUS OXID-OXYGEN.

The use of chloroform or ether to an extent sufficient to have any appreciable effect upon pain is likely to decrease the strength of uterine contractions, and to decrease or abolish the aid of the accessory muscles of expulsion and therefore increase the duration of labor.

I have on several occasions induced and maintained for a varying length of time a true analgesia with ether in which the patient was conscious but felt no pain. Each time however labor has been more or less delayed and in two recent cases the contractions were entirely stopped and did not recommence after the withdrawal of the ether for 20 minutes in the first case, and 25 minutes in the second. In both of these cases after the period of delay, nitrous oxid with 15% of air was administered as soon as the woman began to show indications of suffering. In both cases the uterine contractions were apparently stimulated and labor went on to a satisfactory conclusion. How much the period of rest following the ether had to do with renewed strength of the labor pains, it would be difficult to say, but at all events the use of  $N_2O$  did not decrease the strength of uterine contractions or the voluntary assistance of the patients.

The proper use of morphine and scopolamin

probably does not delay the first stage of labor, but all authorities seem to agree that they increase the duration of the second stage. The chief danger of morphine and scopolamin lies in the fact that both drugs are respiratory depressants. It seems probable, however, that the reaction against "Twilight Sleep" is carrying us too far and that we are likely to lose sight of much that may be of value in the antagonism engendered by the too ardent advocates of the method.

The use of morphine alone delays labor when given too early or when given in cases of uterine inertia. On the other hand, it may actually expedite labor by conserving the patient's strength and through its aid in relaxing a rigid cervix. Chloral hydrate also assists in the dilatation of the cervix and in giving rest to the patient. It should be remembered, however, that it causes a decided direct depression of the respiratory centres and its property of lowering blood pressure may constitute at times a danger to the fetus.<sup>3</sup>

For the past few months in the Division of Obstetrics and Gynecology of the Stanford University Medical School, nitrous oxid-oxygen has been administered to all patients in labor who could pay a given sum for the gas and for those who for any reason presented contraindication to the use of ether, whether they could pay for the gas or not.

In our earlier cases in the use of nitrous oxid-oxygen analgesia, we had the same experience which has been reported by many others, in that we frequently carried the patients past the stage of analgesia into that of light anesthesia, so losing the advantage of the patients' voluntary assistance. With greater experience and better co-operation between the obstetrical and anesthetic departments, we believe that the second stage of labor will be definitely shortened, although our tabulated results do not show this, as do those reported by many other observers. However, our tables include the earlier cases before mentioned together with the cases of assistants who were receiving instructions in this form of nitrous oxid-oxygen administration.

*Interference.*—The part which narcotics and anesthetics play in the necessity for interference in order to conclude labor depends upon whether or not they decrease the strength of uterine contractions and the patient's ability to use the accessory muscles of expulsion. It has been shown by many observers that morphine, scopolamin, chloral hydrate, chloroform, and ether all delay labor to a greater or less extent, depending upon the judgment with which the dose is regulated and the time given. Nitrous oxid-oxygen, on the other hand, certainly does not delay labor in the second stage and may be given in such a way as to shorten the duration of this stage. It therefore seems reasonable to expect that interference would be indicated with less frequency when nitrous oxid-oxygen is used. The statistics seem to prove this to be true. When forceps are indicated continuous  $N_2O, O$  analgesia or a moderate degree of anesthesia is eminently satisfactory with possibly the addition of a very small amount of

ether at the perineal stage to secure relaxation. In this connection I wish to protest against the use of profound gas oxygen anesthesia for any purpose before or during the delivery of the child. According to Connell's tabulation of the zones of anesthesia under  $N_2O, O$ , any decrease of oxygen below 14% is impossible without some trace of asphyxia.<sup>5</sup> The addition of an extremely small quantity of ether will produce the necessary relaxation without danger while any degree of asphyxia confined for more than a very brief interval cannot be without danger to the fetus.

The addition of a small quantity of ether, without any diminution or even a slight increase in the percentage of oxygen, is a relatively harmless procedure while the attempt to secure relaxation by decreasing the amount of oxygen beyond certain limits is always dangerous and especially so in obstetrics.

When version or any other procedure requiring relaxation is indicated,  $N_2O, O$ -ether or ether-oxygen is unquestionably the safest for the fetus and probably for the mother as well.

**Hemorrhage.**—Postpartum hemorrhage is believed by many to be relatively less frequent after gas than after the use of ether or chloroform as the normal tone of either voluntary or involuntary muscle is not lost under  $N_2O, O$ .

**Lacerations.**—Davis, Lynch, Allen and others state that in their experience the frequency of laceration is noticeably diminished by the use of nitrous oxid-oxygen because of the better control over the patient owing to the fact that she is conscious and can bear down or not just as the obstetrician may desire. However, the greater strength of uterine contractions under  $N_2O, O$  would certainly suggest the possibility of an increased number of lacerations. This, and the fact that the patient while fully conscious is usually not making any outcry, make it necessary for the obstetrician to be extremely alert or the greater potential control of the patient will not prevent an increase in the number of lacerations.

Several instances illustrating this have been reported in which the patient under nitrous oxid-oxygen analgesia simply gave birth to her child without the benefit of the obstetrician's services at the important moment.

**Prolonged Labor.**—Another danger arising from the fact that the patient under  $N_2O, O$  analgesia gives so little oral evidence of the progress of labor is that labor may be allowed in some cases to be prolonged beyond the point of safety to the child, i. e., where the obstetrician may fail to recognize the need of interference when he would certainly do so were the woman showing the evidence of pain. I realize my temerity in making this last statement to a gathering of this kind, but a few such cases have already been reported.

**Minor Operations.**—Most minor operations before the birth of the child can usually be performed under continuous  $N_2O, O$  analgesia.

**Eclampsia.**—In eclampsia chloroform is still, it seems, the most commonly used anesthetic. The reasons are obvious, as chloroform more readily

produces sufficient relaxation to control the convulsions. At the same time it should be remembered that chloroform while the most powerful of the anesthetics in common use is at the same time the most toxic, which it would seem should be sufficient reason for avoiding its use in toxemias. Edgar says: "In the majority of cases of eclampsia, in which we feel sure of the existence of the pregnancy kidney, it is stated that hepatic lesions are almost invariably present." As we know chloroform even in moderate doses may cause liver necrosis among other tissue changes. Recently a case came under my observation in which the administration of chloroform for 20 minutes was followed by marked symptoms of chloroform poisoning. Graham says: "Ether and chloral hydrate which do not yield halogen acid in their breakdown in the body likewise do not produce necrosis. They induce only edema and fat infiltration to a less marked degree."<sup>7</sup>

Douglas H. Morse states: " $N_2O, O$  has most of the advantages and none of the dangers of the hydrocarbon anesthetics. Thus it is non-irritating, non-lipoid, solvent, is only slightly toxic and does not attack the liver or renal cells."<sup>10</sup> "Dr. Crile is convinced that  $N_2O$  is superior to the hydrocarbon anesthetics because it is not a lipoid solvent, and protects the reserve supply of molecular oxygen in the neurones."<sup>10</sup> However, in practice we find that  $N_2O, O$  will not always control the convulsions of eclampsia and will not give sufficient relaxation for operative procedure after the convulsions have actually begun. In such cases  $N_2O, O$ -ether or ether-oxygen would seem to be indicated. In cases of profound toxemia, however, or threatened eclampsia,  $N_2O, O$  gives ideal results.

Dr. J. C. Webster of Chicago was probably the first in this country to demonstrate the use of nitrous oxid-oxygen anesthesia in operative obstetrics with particular reference to cases in which other anesthetics were contraindicated.

Others have been quick to take advantage of his experience and it is rapidly becoming the custom to give patients who are toxic or especially bad risks for any reason the benefit of this comparatively safe form of anesthesia.

Four cases from among others in the service of Dr. Spalding serve to illustrate the benefit of a non-toxic anesthetic in this type of patients.

Case 1. Mrs. O. Pregnancy 8 months 10 days. Pre-eclamptic toxemia. Operation—low forceps. Nitrous oxid-oxygen anesthesia with the addition of small amount of ether to secure relaxation. Condition of baby good. Spontaneous respiration. Patient made satisfactory recovery.

Case 2. Mrs. R. Full term pregnancy. Toxemia with threatened eclampsia. History of eclampsia in last pregnancy with loss of baby. Operation—low forceps. Nitrous oxid-oxygen continuous analgesia followed by nitrous oxid-oxygen anesthesia. Condition of baby good. Spontaneous respiration. Mother made usefultful recovery.

Case 3. Mrs. M. Pregnancy 5 months. Extreme toxemia. Diagnosis of dead fetus. Operation—vaginal Caesarian section. Nitrous oxid-oxygen anesthesia with the addition of ether

( $\frac{1}{2}$  oz.) for relaxation. Patient made uneventful recovery.

Case 4. Mrs. E. Pregnancy 5 months. Extreme toxemia of pregnancy with complications. Operation—Hysterotomy, version and breech extraction. Baby lived  $1\frac{1}{2}$  hours. Patient made satisfactory recovery.

In the last of these cases, at least, it is extremely doubtful if recovery could have taken place had a toxic anesthetic been employed. The condition of the patient was so serious that when called to administer the anesthetic I scarcely expected a satisfactory result.

**Caesarian Section.**—In Caesarian section nitrous oxid-oxygen anesthesia with anoci association gives ideal results, but nitrous oxid-oxygen with the addition of a small amount of ether to secure a certain degree of relaxation until after the child is delivered is probably more satisfactory to the majority of surgeons as it allows this portion of the operation to be performed so much more rapidly. When everything is ready for the actual incision before the anesthetic is started, it is possible for a skilled operator to deliver the baby so soon after the induction of anesthesia that the child shows no effects of the anesthetic. It seems to be entirely safe to permit the incision as soon as the patient is in good primary anesthesia. Under these conditions the babies usually cry spontaneously often while the cord is being clamped and cut. We have had this result in a relatively large number of cases both under nitrous oxid-oxygen ether anesthesia and ether-oxygen anesthesia. After delivery the remainder of the operation can usually be completed under nitrous oxid-oxygen alone as the reason for giving so large a percentage of oxygen ceases with the clamping of the cord.

#### TECHNIC OF NITROUS OXID-OXYGEN ANALGESIA AND ANESTHESIA IN NORMAL OBSTETRICS.

The technic of N<sub>2</sub>O, O analgesia in normal obstetrical practice is now fairly uniform. It consists of the administration of N<sub>2</sub>O with varying percentages of oxygen for each individual pain to a degree sufficient to abolish suffering without disturbing consciousness, until the perineal stage is reached, when continuous analgesia is usually indicated. The gas is given at the first suggestion of the uterine contractions so that the analgesia may precede the pain. The amount of gas required and the percentage of oxygen varies considerably with the individual patient, the point being to give just sufficient gas to control the pain with enough oxygen to prevent cyanosis. Too much oxygen will produce excitement, too much gas will induce anesthesia. A frequent method is to give three breaths at the beginning of each contraction, the first two being N<sub>2</sub>O only and the third containing 4 to 6% of oxygen. The respirations should be fairly quick and the patient instructed to hold the third breath for a considerable time whether it is desired to have her make voluntary muscular effort or not. The number of respirations sometimes must be increased to 5 or 6, but whatever the number the last breath should be held. Occasionally less than

three breaths will be sufficient. Recently I had a patient who was completely anesthetized after three breaths, became wildly excited after two and had analgesia after one. I therefore continued her analgesia with one inhalation at the beginning of each pain until the pains, becoming more frequent and severe, two breaths were required, then three, and for the perineal stage she had continuous analgesia with 80% N<sub>2</sub>O and 20% oxygen. Whatever the number of breaths required, it is a safe practice to add a small amount of oxygen after the first two or three. As the pains become longer it is well to hold the inhaler in such a way that additional breaths of gas may be given if necessary. For these later inhalations most observers agree in the use of a larger percentage of oxygen. It is our custom to use the same percentage here as for continuous analgesia, i. e., N<sub>2</sub>O 80%, oxygen 20%. As soon as the head is delivered, it is well to increase the oxygen to 30 or 40% and immediately after the child is born to give the mother a few inhalations of pure oxygen. Pure oxygen cannot be breathed with safety for more than a brief interval, but we have had very gratifying results by the administration to the mother of oxygen from a low pressure cylinder for some five minutes before the cord is cut. The oxygen is simply added to the air by placing in the patient's mouth a metal mouthpiece connected with the wash bottle of the oxygen tank. Should the baby be cyanotic from prolonged pressure, cord around neck, or any other reason, it is interesting to see how quickly the cyanosis will clear up under this procedure. We make a routine practice of administering oxygen in this way regardless of what anesthetic has been used for the delivery.

The success of nitrous oxid-oxygen analgesia depends upon the ability of the anesthetist to adapt the administration to the needs of the individual patient, upon being able to secure the patient's confidence and co-operation, upon the degree of intelligence of the patient, the quietness of the room, particularly the absence of disturbing conversation, and last but by no means least, teamwork between the obstetrician and the anesthetist.

Given a skilled obstetrician, an experienced anesthetist, and proper teamwork, there should be no failures.

I entirely disagree with all who advocate the haphazard administration of nitrous oxid-oxygen by any one who happens to be available, also with those who advocate self-administration except under the direction of a competent person.

Dr. Skeel says in the Journal of the American Medical Association: "I wish to enter a vigorous protest against the advice at present being so freely given that any one may use gas in labor cases with perfect safety. Gas is a powerful therapeutic agent with infinite possibilities for harm at the hands of incompetent or careless users. The statement has been made and is, I believe, accepted that gas in the hands of an expert is a safe anesthetic, but the *most dangerous* anesthetic if given by a novice. Of course this is far too strong a statement to make concerning analgesia.



Even here, however, some knowledge and experience are necessary to secure both safety and satisfaction from its use. The skill necessary for its use in labor can be acquired in a short time, but free use of gas by the absolutely inexperienced will surely lead to tragedies."<sup>8</sup>

The use of N<sub>2</sub>O and air instead of N<sub>2</sub>O and oxygen has been advocated by many on the ground of economy and the simplicity of apparatus which may be employed.

Guedel calls attention to the fact that "under individual pain administration the babe in utero receives but little N<sub>2</sub>O from the mother, no matter how great may be the excess of gas in the mother's blood during the acme of contraction." He adds: "During the period of induction when the gas is entering the blood of the mother, the uterus is contracting so that there is little if any interchange of foetal and maternal blood. The babe lives during the uterine contraction upon well oxygenated placental blood accumulated between pains. The anesthetic is removed at the acme of contraction and as only 10 to 20 seconds are necessary for the removal of the excess N<sub>2</sub>O from the blood of the mother, it becomes evident that the blood of the fetus receives but little nitrous oxid at any time. By the time the uterus is relaxed sufficiently to permit an interchange of blood through its walls, the blood of the mother is almost free of nitrous oxid and is again well oxygenated."<sup>4</sup>

The question of rebreathing is of importance because of economy and because it serves to warm the gas. Too much rebreathing however is apt to cause nausea and headache. In our work we have better results without rebreathing for intermittent analgesia, and with only fractional rebreathing for continuous analgesia and anesthesia.

**Expense.**—The expense of nitrous oxid analgesia is reported by various investigators as all the way from 57 cents to \$5.00 an hour. The difference is mainly due to the price of gas in the particular locality from which the report originates, the kind of apparatus used, whether air or pure oxygen is used with the nitrous oxid, and whether or not rebreathing is employed. The gas in the largest cylinders is the least expensive.

By using the large cylinders, an apparatus in which the flow of gas is automatically shut off except when the patient is inhaling, looking carefully after all possible leaks and keeping our apparatus in perfect working order, we have found that even at the comparatively high price of gas on this coast we are able to give gas for obstetrical analgesia and anesthesia at a cost to each patient of \$2.50.

In the series of cases since we commenced giving gas to all obstetrical patients who so desired there are 201, of which number 83 had N<sub>2</sub>O,O; 19 had N<sub>2</sub>O,O followed by ether; 81 had ether and 18 had no anesthetic. These last were mainly patients who entered the hospital a few minutes before delivery. Our records are complete in all respects except for some gaps in the duration of the various stages.

## DURATION OF STAGES.

	N <sub>2</sub> O,O	PRIMIPARAE.			Nothing
		N <sub>2</sub> O,O-E	Ether		
1.....	15' 17"	25'	16' 50"		11' 10"
2.....	2' 12"	1' 7"	1' 05"		21"
3.....	19"	13"	17"		18"

	N <sub>2</sub> O,O	MULTIPARAE.			Nothing
		N <sub>2</sub> O,O-E	Ether		
1.....	10' 52"	10' 41"	9' 53"		10'
2.....	58"	2' 31"	51"		27"
3.....	17"	12"	18"		17"

LACERATIONS.					
	N <sub>2</sub> O,O	PRIMIPARAE.			Nothing
		N <sub>2</sub> O,O-E	Ether		
1°.....	7	2	9		1
2°.....	19	8	10		2
3°.....	—	—	—		—

	N <sub>2</sub> O,O	MULTIPARAE.			Nothing
		N <sub>2</sub> O,O-E	Ether		
1°.....	5	0	9		2
2°.....	6	1	7		2
3°.....	—	—	—		—

FORCEPS.					
N <sub>2</sub> O,O	PRIMIPARAE.		N <sub>2</sub> O,O	MULTIPARAE.	
	N <sub>2</sub> O,O-E	Ether		N <sub>2</sub> O,O-E	Ether
6	7	5	1	1	2

MORTALITY.		
Maternal—none		Fetal: N <sub>2</sub> O—6 Ether—6

Of this number under N<sub>2</sub>O,O, two were macerated fetuses; 2 forceps deliveries; 1 version and extraction, and 1 congenital endocarditis, died in two days.

Fetal mortality under ether: 1 premature 2 mo.; 1 cerebral hemorrhage (version); 1 syphilis; 1 premature separation of placenta (forceps); 1 asphyxia—breach extraction.

This synopsis proves nothing but if we had a record of 2000 cases instead of 200, we could begin to draw conclusions. Still better, if by some miracle all who do obstetrics would keep and publish from time to time accurate records of every case, we would soon have something definite to guide us in the choice of methods to relieve the suffering of childbirth instead of opinions, prejudices and often misguided enthusiasm.

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## THE J. HENRY BARBAT PRIZE.

Dr. J. Henry Barbat, President of the Society, offers a cash prize of \$50.00 for the best paper presented at the meeting at Del Monte in 1918. Papers on original subjects are to have preference. A jury of five members, appointed by the Council, will have final jurisdiction in the distribution of the prize.

### REFRACTION IN CHILDREN.

By EVERETT S. McCLELLAND, A. M., M. D., Associate in Clinical Ophthalmology, College of Medical Evangelists, Los Angeles, California.

The author having been a public school teacher and later a college professor before entering the practice of medicine has long regretted that the medical profession and all those interested in education do not take more interest in the optical defects of children, which if not corrected retard the educational progress of about 20 per cent. in our public schools.

The public does not understand the limitations of jewelry store and prescription opticians in their examination of children's eyes. Parents should be warned of the danger of taking their children to so-called "Doctors" or "Eye-sight Specialists" who are found located in shops and stores. The picture of an eye on a window should be recognized as a warning that the inmate of that office is not a physician and is not educated to properly examine or fit the eyes of children even if lawfully permitted to use a mydriatic.

This article is based on the conclusions drawn from the refraction of about 700 school children between the ages of six and twelve.

But little attention has been paid to various theories, preconceived notions and authoritative teachings in order that the final corrections which gave the best vision along with relief from physical and mental symptoms might be the guide in making our impartial deductions.

About 60% of this series was refracted in the Free Public School Dispensary of the City of Los Angeles, largely through the influence of Mrs. Elizabeth McManus and the Parent Teacher Association. To Dr. Margaret Gilliland and Secretary Mrs. Katherine DeWald with whom the author was associated in the work, and to Dr. R. A. Harris, in charge of the department, and to Dr. I. R. Bancroft, head of the public school clinic, the author wishes to acknowledge credit for valuable cooperation.

This series included representatives of almost every nationality and was in no way selected, except with reference to age. The rules established are not to be considered invariable, for even the nationality and complexion presented a few exceptions to the general deductions.

The article deals largely with hyperopia and its correction because this is the prevailing optical defect in children which acts as a source of focal irritation both locally and reflexly through the sympathetic system.

Hyperopia, we remember, is a condition of the eye in which, when accommodation is suspended, parallel rays of light are focused back of the retina and not on the retina as in the emmetropic or normal eye. Hyperopia, or "farsightedness," must therefore be corrected by convex or plus lenses, while myopia, or "nearsightedness," must be corrected by concave or minus lenses.

The normal and hyperopic eye have power to adjust themselves from a distant to a near object, and vice versa. This power is called accommodation and is one which the myopic eye does not possess unless the nearsightedness is of a very low degree.

Accommodation is a normal process up to a certain limit. This limit is called the near point or about thirteen inches from the eye, and is generally considered the easy reading distance for the normal eye. Accommodation for this distance requires only a reasonable and physiological contraction of the circular ciliary muscles. Normally this effort of the ciliary muscles does not appear

to cause any disturbance although made almost constantly for from ten to twelve hours daily, but, in the hyperopic eye, this act of accommodation taxes the ciliary muscles beyond the limit of endurance. This excessive contraction manifests itself by fatigue or, more commonly, by ciliary muscular spasms in the child. The objective evidence of these spasms is temporary nearsightedness or a variable number of local or reflex irritations to be considered later and which may be found in any form of hyperopia, whether simple or associated with astigmatism.

The myopic eye is not associated with reflex ocular symptoms because it can make no active effort to see. It can not accommodate. It must always remain passive. Its ciliary muscles are always relaxed. Even myopes with marked astigmatism seldom give any history of pain in their eyes or of any other reflex nervous symptoms. Myopes usually come or are referred for refraction only on account of defective vision of which they have become conscious only after being told or after having compared their vision with others. After being corrected it is not uncommon to hear a myope make some such remark as, "Why I never knew that there was anything wrong with my eyes," or, "I always thought that everything was covered with fuzz or hair."

With these points in mind we should not be surprised to find that 95% of this series of cases with optical defects were hyperopia and that 98% of all those suffering with optical defects were hyperopic.

No patient, who did not require a plus in his correction, ever gave any symptoms of reflex irritation which could be attributed to optical defects. The more plus required in the correcting formula the greater the evidence of reflex irritation. Symptoms associated with compound formula in which a minus was involved could be accounted for by the plus in the formula. Not over one-tenth of one per cent. of myopes ever complained of their eyes, except so far as they realized that they did not have normal vision, and those who did, had large pupils and usually were blonds suffering from too much light, or had been overcorrected with concave glasses and made artificially hyperopic.

#### HISTORY OF THE REFLEX IRRITATION.

A history of the child's trouble, furnished by the mother was always found to be important. Marked Compound Hyperopic Astigmatism in which the required correction was over one diopter in both the sphere and cylinder was the defect which seemed to produce the most severe symptoms, although not the most common ones. Defective vision was always characteristic of this defect. The local irritation, such as follicular conjunctivitis, styes or swollen lids, was no more common with this defect than with lesser defects of hyperopia. Morning nausea and vomiting or periodic vomiting seemed to be characteristic. The subject was commonly languid and irritable in the morning and was not disposed to rise with the rest of the family. Very few were in school or expressed any desire to attend.

Hyperopia, simple or compound, in which the

correcting formula was represented by a plus sphere or cylinder of less than one diopter but more than one-half diopter, represented the optical defect of 75% of all sufferers. Not over one half of these cases complained of any defect in vision and those who did were usually suffering from ciliary spasm. Most cases of simple hyperopia possessed an abnormal vision for distance of 30-20, or even 40-20, and for this reason the parent often insisted that the child needed "no glasses." The symptoms were numerous but not so prolonged. They came in the afternoon or after using the eyes. Any one or combination of the following symptoms usually disappeared after the proper correction, viz: Pain in the eyes, eyebrows, forehead, temples or one temple, nausea but rarely vomiting, lassitude and exhaustion in the evening, lack of appetite for the evening meal, restlessness at night, intense nervousness in the morning, positive dislike for school or for any technical work, drowsiness and often apparent stupidity in school, associated with periods of intense nervousness simulating corea, neurasthenia with various combinations of nervous symptoms similar to those found with exophthalmic goitre, spells of atypical migraine and a desire to find amusement out of doors.

#### SYMPTOMS OF LOCAL IRRITATION.

As stated above, local irritation was not so common with the major defects as with the minor ones, possibly because the defective vision associated with the major ones prevented the use of the eyes for near work.

Styes, congestion of the conjunctiva, follicular conjunctivitis, photophobia, burning and itching of the lids were almost always found with uncorrected minor hyperopic defects.

Crossed eyes, or esophoria, were always found with the major defects of hyphoria, if at all. A tendency to hold the head down or to one side was indicative of marked hyperopic astigmatism.

Not one case of exophoria could be attributed to myopia as has been authoritatively described as possible, while 95% of esophoria was associated with marked hyperopia of one diopter or more. With reference to esophoria, it was interesting to note that if it was constant in one eye and associated with hyperopia, that the crossed eye was one with defective vision, while if the eyes crossed alternately that the vision was equal or nearly so in each eye. On account of the lack of coordination between accommodation and convergence the strong eye or the one with the keenest vision had evidently taken the lead leaving the image of the weaker eye to be discarded and so become increasingly weak from non-use. Only one case of esophoria with one eye crossed was found to have binocular vision, suggesting the necessity for the early prescribing of lenses in these cases, since the most satisfactory results are obtained before binocular vision is lost.

#### HEREDITY.

It was found that a child, whose one parent had optical defects, had not only the same kind of defects as the parent but even the same axis of astigmatism in 90% of all cases. When both parents had defects no rule for the error could be established. A very large per cent. of the parents

of these children gave histories of eyestrain in their youth sufficient to cause them to lose interest in and fall out of school. Not over 80% of these parents had received a correction for their eyes until after leaving school.

#### CORRECTION WITH THE RETINASCOPÉ.

Any attempt to correct hyperopic astigmatism by the chart, without the use of a mydriatic in children, was found to be worse than foolishness because even if the child was capable of interpreting the chart the ciliary muscles were usually so irritated that a correction was made impossible.

The chart with the use of the fogging system was found useful in the routine of checking up other findings and especially for the correction of simple hyperopia. The use of the chart was not found satisfactory for the correction of hyperopic astigmatism, even when the accommodation was completely paralyzed, because a correction of astigmatism for twenty feet by this or by any method does not correct the trouble for the near or working distance in one-half of the cases within one-fourth of a diopter. The author would be pleased to demonstrate the fact to any one interested in the technique of refraction.

The static method of retinoscopy, with the fully paralyzed accommodation and fully dilated pupil was not found satisfactory for the correction of this kind of astigmatism. It was found indispensable for determining real myopia from apparent myopia or ciliary spasm, and for estimating the general amount and axis of astigmatism, but this method could not be depended upon for an exact astigmatic correction however absolutely the ciliary body had been paralyzed. This was because the irregularities of the cornea and lens increase from the visual axis outward toward their circumferences. This is suggested by the visual acuity one obtains by looking through a pinhole disk in startling contrast to the blurred vision one realizes through a fully dilated pupil. The retinoscopic evidence of this increased irregularity became the source of great confusion in many cases. Various shadow phenomena, such as scissorlike movements from the exaggeration of a moderate amount of ordinary astigmatism or kaleidoscopic movements from mixed astigmatism with an exaggerated amount of chromatic aberration often disappeared entirely after the pupil had returned to normal. As it is useless to attempt to correct optical defects outside of the ordinary pupillary area, these peripheral shadow phenomena developed by the static method often became a source of confusion in making the exact necessary correction.

For this reason the dynamic method of retinoscopy gave the most exact and gratifying results in correcting the astigmatism for the necessary working distance, if used with a strong light of about 80 candle power, because all confusing light reactions were discarded.

If we use the static method of retinoscopy we must depend on a fully paralyzed accommodation; if we use the dynamic method we must depend on normal accommodation. I believe the failure to keep this in mind is the reason why so many fail to find any definite use for the



retinoscope, the instrument indispensable for refraction in children.

#### IRREGULAR ASTIGMATISM.

Our efforts to correct defects of this kind with cross cylinders was not satisfactory, partially no doubt because it was not only difficult to make the correction for a child but next to impossible to find children of this age capable of maintaining a proper adjustment. Very striking results were obtained in three cases by blocking out the defective eye with a plus sphere. These defects had been caused by scars. Two cases had suffered with phlyctenular ulcers on the affected eye, at various intervals during the last two years. They had gone through the hands of two very competent physicians without receiving any apparent benefit. In these cases the Wassermann and tubercular tests were negative.

Since these defects have been fogged out the corresponding eyes have remained in perfect health and the possessors have progressed rapidly in school and lost all previous nervous symptoms without further treatment. As these patients had binocular vision we may suppose that the brain found it impossible to fuse the imperfect with the perfect image, or at least that the effort to do so had in some way been the cause of the local and general irritation.

#### CORRECTION.

As not over one-half of hyperopes have any conscious defects for distant vision, and many of them, especially if their defect is simple hyperopia, have really an abnormally good vision for distance, it was often difficult to get the parent, much less the child, to understand why it was necessary for any one to wear glasses which did not increase the distant vision. To all such it was practicable to apply the term of "resting glasses."

The most practical rule for the correction of hyperopes was to give a full correction for the astigmatism for the working distance and add only enough sphere to fog to normal. Children do not like to be fogged above normal and there is no reason for doing it. The old rule copied and recopied from text-books to give the hyperope all the plus he will wear is perhaps a safe rule so far as the eye is concerned, but it is not always a satisfactory one to the patient. A better rule is to give the patient simply enough of the plus sphere to make his distant vision normal, viz: 20-20.

Hyperopia is a normal condition of infancy. In the child it is rather a lack of development than an abnormal one. Many healthy children have moderate hyperopic defects without symptoms. Just what per cent. of hyperopic children do not need correction, so far as I know, has not been determined. From the fact that so many healthy hyperopes do not need correction the author has always been dubious about the advantage of low correction of plus .37 spheres or less. It is difficult to understand how a plus sphere of .25 could give much relief to an overstrained accommodation, especially when a minus sphere of an equal strength may apparently give an equal benefit. It is conceivable that even a

plus .12 D. cylinder might be of benefit if it acted as a correction for the near or reading distance. The relief from low corrections, however, indicated a larger percentage of benefits here in this climate than usually reported, but this was proven to be brought about only from the exclusion of the excessive ultra-violet rays so characteristic of this locality. The ultra-violet rays are too short in their vibration to be of any benefit to vision but consume the visual substance of the retina. This may explain why so many blonds with especially large pupils, whether hyperopic or myopic of low degrees, receive benefit from low correction which can do little more than obstruct an excess of light through indirect vision. Plain lightly smoked glass gave as much benefit in these low defects even where the error was that of a low grade of hyperopic astigmatism. At present we see lenses of almost every color being worn on the streets, and although they correspond more nearly with fashion than with usefulness, they testify to the evil effects of strong light on the eyes. Colored lenses not only product an unnatural effect which becomes tiresome, but cut out less of the ultra-violet light than does the ordinary Crook's glass.

A simple minus lens is always a questionable prescription for children and should always be verified since the apparent slight myopia is so often the manifestation of hyperopia in the form of a clonic or tonic ciliary spasm, and if this be true the added minus lens will only increase the disturbance by making the patient artificially more hyperopic. For the same reason the over-correcting of any form of myopia is sure to cause trouble.

#### TRANSPOSITION OF FORMULA.

It is customary for all lens grinders to transpose prescriptions into their simplest form for grinding. In our experience this made no difference where the major amount of the correction was plus, but it did not do as a rule to make a transposition when the major amount of the correction was minus, and almost never when the sphere and cylinder were both minus. The myopic eye having but a slight amount of accommodation is not able to make any change in its focal distance. This statement may excite criticism but if an apple be cut to illustrate a simple case of myopic astigmatism one may readily see that, if an attempt be made to make the same correction by transposing the cylinder into a plus one with an opposite axis the focal distance is changed.

#### PUPILLARY DISTANCE.

In this series of cases it was found to be most satisfactory and even necessary to give the child the proper pupillary distance for its near work, especially in prescribing cylinders, otherwise the cylinder often did more damage than good. It always seemed advisable to take account of the pupillary distance which was used in the fitting frame when the given correction was prescribed, and not to make the correction, and then without taking into account the pupillary distance used while refracting to disregard it and take a different measurement later. This may amount to as

great a mistake as it would be to change any other part of the formula. As it is impossible to give a pupillary distance for both near and distance in a monofocal lens it is best to leave the lenses decentered for distance when the eye is relaxed.

#### ADJUSTMENT.

Our experience suggested strongly the desirability of an optical inspector for the public school system. A nurse not only competent to make adjustments but capable of giving children a few simple instructions in the care of their lenses. If the child's frames are bent or the lenses are in any way out of the proper position they cannot receive either benefit or comfort from the most accurate corrections. It was found to be undesirable to permit children to wear rimless lenses. They are too easily broken and endanger the eyes. A small lens, an O. E., 1.75 m.m. thick, with an ordinary rim, has not been known to be the cause of an accident although it is advisable to have children remove their glasses when engaged in active sports.

#### SUMMARY.

1. About 98% of all children between the ages of 6 and 12 who suffer from optical defects in this climate are hyperopic.
2. Other things being equal the more the plus required in the correcting formula the more the reflex irritation before the correction is made.
3. Not all healthy hyperopes need correction.
4. More attention should be paid to the effect of the bright light of this climate on the eyes of children.
5. Simple forms of myopia are possibly more common than suspected, since they seldom give any reflex symptoms unless associated with a large or light-colored iris.
6. Myopes should never be over-corrected because the artificial hyperopia established thereby makes the condition for eye-strain possible.
7. Great care should be taken to differentiate simple myopia from ciliary spasm, as this is possibly the most common mistake made in the refraction of children.
8. The static method of retinoscopy is the most convenient for the differential diagnosis on account of the paralyzed accommodation, but as optical defects increase from the visual axis outward, the dynamic method by which the contracted pupil discards the confusing and unimportant shadows is the most accurate and the only method of making the correction for astigmatism for the near distance.
9. Not over one-half the corrections for hyperopic astigmatism made for 20 feet correct the near or working distance within one-quarter of a diopter in young children.
10. When a child and only one parent have optical defects the defects of each are of the same kind even to the axis of astigmatism in 90% of all cases.
11. Most cases of constant squint in one eye lose the power of binocular vision before the sixth year.
12. A diffused image from one eye such as

caused by a scar when associated with binocular vision should be fogged out if the proper correction cannot be made or determined.

13. Children should be given instruction in regard to the care of their lenses.
14. The pupillary distance for near work should be given to school children.
15. Rimless lenses should not be prescribed for children. Small thick lenses properly mounted with rims will not produce any injury to the eye in case of an accident.

### SOME OCULAR DEFECTS IN MENTALLY RETARDED CHILDREN.

By HANS BARKAN, M. D., San Francisco, Instructor in Ophthalmology, Stanford University Medical School.

The affections of the eye in childhood are various and in many instances peculiar to the eye of the child or young adult—scrofulous Keratitis, some forms of blennorrhoea of the sac, and some forms of conjunctivitis; interstitial luetic Keratitis, certain forms of tumor, as glioma, and a certain number of congenital defects, or at least congenital malformations, of certain structures. These latter are found, in my experience at least, very much more frequently in the eyes of mentally retarded children than in the normal child. Mentally retarded children, for the purpose of this paper at least, I will consider as being divided into two groups: those whose retardation is due to physical handicap which can be removed—tonsils, adenoids, highgrade myopia or other marked errors of refraction; second, those where in the absence of any marked general or local physical faults, a certain degree of mental retardation is present, evidenced often not only by negative inability to learn as others of the same age do, but also by positive traits; the children are unruly, disorderly, disobedient; petty thieving, constant truancy from school, confirmed lying and other evidences of abnormal mental status are common. It is of this second class particularly that I wish to speak. The visual tests display as the most common abnormality, either a marked difference in the vision of the two eyes or low vision in both equally. The first condition is perhaps slightly the more frequent. The poorer eye is inclined to stand slightly divergent in distant vision, though it usually, in fixing a near object converges as properly as its fellow. The muscular balance tests seldom even approximate the normal, but show marked degrees of either exophoria or esophoria, usually the former. Color perception centrally is usually normal but not so in the periphery, where a marked concentric contraction for colors is often evident. In the judgment of this latter condition one has to be particularly careful, as the mental status is often uncertain and the answers, unless checked up repeatedly, not to be relied on. The cause for this unilateral or bilateral poor vision may be (1) refractive in type (2) due to fundus changes, varying in type from the residue of a specific retinitis and choroiditis, to nothing more than an exaggeration of the limits of the normal types; this latter condition, which I will take up later in more detail, is very much the more frequent of the

two; indeed it is present in the great majority of these children. Concerning ourselves with the refractive status for a moment; by far the great majority are farsighted with some astigmatism, some are high astigmatics in addition to being farsighted; a very small number are myopic. This brings us to a not uninteresting biological point. Many animals are farsighted, the carnivora and birds especially; so are practically all new-born children. The markedly hypermetropic eye harks back somewhat to the build of eye of animals lower in intelligence than we; while of positive advantage to the animal it is of detriment to us. Our visual needs do not call for excessively clear distant vision, or for excessively keen judgment of space, such as the eagle and hawk undoubtedly employ by the sense of accommodative contraction of their ciliary muscle. This eye then—the excessive hypermetropic one—is in the human more akin to the animal eye, and less adopted to our needs than the emmetropic or slightly myopia eye. That this latter condition is met quite infrequently in the cases under discussion is of interest from diametrically the opposite standpoint. It is the eye of the student, the type of eye most often transmitted to their progeny on the hereditary basis, from families of students or close observers in skilled employments—such as watchmakers for instance. That the children under discussion come mostly from a class of people of low intellectual attainment and therefore not of the artisan class we all know. The vision can in many instances be brought to normal with the proper glasses. If, however, fundus changes, either distinctly pathological or of the type touching on the extreme border of the normal variations, be present, it is seldom possible to improve the vision materially. In those with pathological changes—pepper and salt retinitis, for instance, we of course do not expect marked improvement, though we may obtain some. Those with changes just outside of the normal variation, but not of a pathological nature—that is, not due to disease of the structures as such—we also are seldom able to improve materially by glasses. What are these changes? Clinical experience has formed a small chapter on this subject in my mind, an abstract of which would be as follows:

- (1) Fundus without or with very little pigment.
- (2) Excessively hyperemic discs, margins not distinguishable, vessels, especially veins, dark and dilated (pseudo-neuritis).
- (3) Disc normal, veins and arteries though normal in calibre, forming many small curves in their course over the fundus.
- (4) Discs of normal color and outline, but vessels branching off fan-shaped. ("Sprawling" off the disc is the descriptive phrase most applicable.)
- (5) Excessively pale disc, vessels of normal size.
- (6) Extensive preservation of the myelin sheaths in certain bundles of nerve-fibres usually near the optic nerve entrance.

Any of the types mentioned militate against much improvement of vision by glasses. Why they should, is another question. The first one is easily explained. Flooded by light, due to the

lack of pigment covering, as fine distinctions cannot be made as can by sensory elements possessed of enough protective covering to filter out the excess of light: we know how much sharper the values of a picture come out when viewed through a small tube or through one's hand held up as a shading device—or more familiar still, the sharpening of an image on a photographic plate by the proper amount of closure of a diaphragm. The second, third and fourth types owe their subnormal vision probably to anomalous blood supply, though in what specific way this militates against acute vision is hard to say. The fifth, probably to excessive glia formation about the nerve fibers and the last is distinctly a reversion to a lower type; in many animals the myelin sheaths are not entirely dropped at the lamina cribrosa; in the rabbit this is most beautifully observed. These in brief are the fundus findings of a considerable number.

As regards the muscular balance of their eyes. In general I feel that "muscular imbalance" has been popped at the laity and the medical practitioner like a bugaboo in a jack-in-the-box—its prevalence and importance grossly exaggerated and all ills that flesh is heir to laid to the mistake Providence made in not giving us a rigid steel globe and iron cables to haul the eye about, instead of our soft and elastic eye with its give and take pulleys and ropes. In spite of the fact that it is "grossly exaggerated," as Mark Twain said of the report of his death, it is of importance in mentally retarded children. These, partly due to their fundus defects, partly because of their refractive error, do not see well, have often no especial desire to see objects acutely, or if they have, find that they must strain too much to do so; as a consequence, they give up trying to correct their visual defect, and with this an abnormal relation between their accommodative and converging impulses is established, with the result that one or both eyes incline to swing in or out. This, as it would result in diplopia, they attempt to overcome by excess nervous impulses, resulting often in headache, irritability and facial contortions of varying degree. As before stated, muscular imbalance of marked degree is a frequent finding, and its correction by the proper glasses often changes markedly the habitus of the child. From these imbalances a fixed strabismus frequently develops; often amenable to cure by glasses if attended to early, but more often do we find that a cosmetic operation only must be resorted to, as the child has lost its vision by reason of an established squint over a period of some years. Considered in large groups, we do not find that anatomical congenital malformations—such as coloboma of the iris and choroid, dermoids of the conjunctiva, epicanthus, microphthalmus, aniridia, cataract and so forth—are more frequent among these children than among mentally normal ones. They are, however, more frequent in idiots and imbeciles than in mentally normal children. A certain relation between ocular defects and the general appearance of the child has often struck me. Those with the poorer vision, whether due to fundus conditions

(Continued on Page 193.)



# SCIENTIFIC PROGRAM FOR GENERAL AND SECTION MEETINGS

## COMMITTEE,

HARRY E. ALDERSON, Chairman,  
FITCH C. E. MATTISON,  
WALTER V. BREM,  
ROBERT A. PEERS, Secretary.

## SECTION CHAIRMEN AND SECRETARIES.

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### Nervous Diseases and Psychiatry Section.

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DR. WALTER F. SCHALLER, San Francisco, Secretary-Treasurer.

## NOTICE FOR THOSE DISCUSSING PAPERS.

You are requested to give your name and address on arising.

## GENERAL PROGRAM

**Tuesday Morning, April 16, 1918,**

9:00 o'clock.

1. INVOCATION: REV. DORWORT
2. ADDRESS OF WELCOME: JUDGE J. A. BARDIN
3. PRESIDENT'S ADDRESS: J. HENRY BARBAT
4. REPORTS OF COMMITTEES:
  - (a) Arrangements—T. C. Edwards, Salinas, Chairman; P. T. Phillips, Santa Cruz; W. B. Teaby, Del Monte.
  - (b) Scientific Program—Harry E. Alderson, San Francisco, Chairman (1918); Robert A. Peers, Colfax, Secretary (1919); Fitch C. E. Mattison, Pasadena (1920); Walter V. Brem, Los Angeles (1921).
  - (c) State Committee on National Defense—H. M. Sherman.
  - (d) Public Health—Robt. T. Legge, Chairman; A. B. Cooke, W. H. Irwin, W. W. Roblee, J. L. Pomeroy.
  - (e) Social Insurance—René Bine, Chairman; Geo. Reimle, G. H. Kress.
  - (f) Grievances—Morton R. Gibbons, Chairman; Sol Hyman, T. A. Wistrand.
  - (g) Advertising—R. E. Bering, T. E. Shumate.
  - (h) Public Policy and Legislation—George E. Tucker, Chairman (1918); Ray L. Wilbur (1919), Wm. Le. Mownc Wills (1919), F. F. Gundrum (1918), W. R. Molony (1920), Walter B. Coffey (1920).

(i) The Regulation of the Practice of Medicine in California Since 1914—H. E. Alderson, San Francisco.

(j) Report of Committee on Industrial Accident Insurance—C. P. Thomas, Los Angeles, Chairman; John H. Graves, San Francisco; Morton R. Gibbons, San Francisco; John C. King, Banning; B. F. Church, Redlands.

## THE REGULATION OF THE PRACTICE OF MEDICINE IN CALIFORNIA SINCE 1914.

HARRY E. ALDERSON.

Purpose and scope of the Medical Practice Act primarily to protect the public. Regulation of practice of medicine purely an educational problem and should not be political. Sects and cults as such not to be considered, provided applicant has had proper basic education, can make diagnoses and is able to assume responsible duties of physician. If he has sufficient education it does not matter what sect or cult he professes to follow. The required year in physics, chemistry and biology of college grade, in addition to high school diploma followed by a four-year medical course at this time sufficient. Tests of fitness should include careful scrutiny of pre-medical and medical credentials and thorough periodical investigations of medical schools from which applicants come. If this valuation of actual pre-medical and medical work is thorough, the Board's written examinations relatively unimportant. Examinations easily passed. The "approval by the Board" clause very important for regulation of teaching institutions, and a means of establishing standards. Complete reciprocity with other states very desirable. Composite boards compared with a single Board. Two theories: First, the Board members represent the sick public whom they are supposed to protect. Second, members represent various sects, cults and special interests only. Prosecution of violators of the law. Future outlook. California's law a good one and the profession should combat every effort to have it changed. State Medical Society should use its great potential political power to assure only sane medical legislation.

## Tuesday Afternoon

2:00 o'clock.

## 1. CLINICAL ASPECTS OF THE FASTING TREATMENT FOR DIABETES.

(Lantern Slides)

ALBERT H. ROWE.

- I. A complete physical examination in all diabetics is necessary.
- II. Individualized treatment for each patient is important.
- III. The patient must learn the caloric values of foods and must keep sugar free.
- IV. The weight of the patient must usually remain below normal.
- V. Absence or presence of acidosis must continually be watched.
- VI. Exercise is most important for the diabetic.
- VII. Environment, habits and mental attitude of the patient must be controlled.

Note.—Lantern slides of the laboratory charts of several unusual cases will be shown.

Discussion opened by Lovell Langstroth.

## 2. THE TREATMENT AND LABORATORY CONTROL OF DIABETES (projectoscope).

LOVELL LANGSTROTH.

Introduction. Work at the University of California Hospital: time consumed; equipment required; help necessary.

Diet. Care in figuring out; weighing what is left; both during starvation; whiskey during starvation; cathartics; general principles of determination of tolerance.

Urine. Collection and preservation; measurement; calibration of glassware; significance of total nitrogen; ammonia, urea nitrogen, creatinine, ammonia-nitrogen ratio, acetone bodies, sugar, chloride and carbohydrate-balance.

Blood. Plasma carbon-dioxide combining power; blood sugar; blood chlorides.

Decision as to whether cases should be treated at home or in hospital according to severity of case; mild cases without acidosis may be treated at home; severe cases should be treated only with laboratory facilities.

Discussion opened by Albert H. Rowe.

### 3. METABOLISM IN DIABETES, NEPHRITIS AND CHOLECYSTITIS.

LORENA M. BREED.

Blood lipoids, blood sugar and carbonate content of blood in diabetes as compared with other diseases; blood nitrogen and carbonate content in nephritis as compared with other diseases; the importance of differential, as well as total nitrogen estimations, also nitrogen balance in the differentiation of nephritis and cholecistitis.

Discussion opened by FREDERICK SPEIK.

### 4. THE KARELL CURE REVIVED.

(Lantern Slides).

NATHANIEL B. POTTER

A starvation of fluids and solids. Other starvation cures. Historical account of cure. Revival of cure. Theoretical explanation of its action and value. Its practical application. Modifications and their comparative effects. Illustrative cases and charts. Conclusions.

Discussion opened by W. JARVIS BARLOW.

### 5. COMPARATIVE STUDIES IN ESTIMATING ACIDOSIS.

ARTHUR STANLEY GRANGER.

Foreword. Technique of the various tests used in this work. Conditions under which tests were made. Diseases studied. Figures in abnormal cases. Comparison of results obtained. Summary. Conclusions.

### 6. THE PREVALENCE OF STREPTOCOCCAL INFECTIONS.

RACHEL ASH.

- I. Introduction. The types of streptococci—their morphology and pathogenicity.
- II. Epidemiology. The various epidemics of streptococcal infections that have occurred in the United States during the last ten years.
- III. Diseases due to streptococci—an especial consideration of diseases of the respiratory tract.
- IV. Illustrative case reports.
- V. Conclusion. The importance of the recognition of septic sore throat, its complications and sequelae, as a safeguard to public health.

## Wednesday Morning, April 17

9:00 o'clock.

### 1. EXPERIMENTAL TYPHOID CARRIERS.

K. F. MEYER.

The various factors, such as immunization, diet, starvation, etc., which favor the gall-bladder-carrier-state in rabbits, guinea pigs, etc., will be discussed. The inhibitive influence of the liver bile in contrast to the bladder bile on the typhoid bacillus, has been carefully studied. The presentation of the main results thus far obtained will lead to a consideration of the pathogenesis of gall-bladder and renal typhoid carriers in general. The experimental studies suggest certain procedures to be followed in the prevention of a transitory or a chronic typhoid carrier state in man.

### 2. RADICAL CURE OF AMEBIASIS WITH COMBINATION OF EMETIN HYDROCHLORIDE AND NEOSALVARSAN OR ALLIED PRODUCTS.

HERBERT GUNN.

Recurrences, the rule after practically all forms of generally accepted methods of treatment. Inefficacy of emetin hydrochloride to destroy cysts and often even motile amebae although symptoms may be entirely relieved. Observations of the effect of neosalvarsan or allied products used alone appear to warrant belief that cysts are not destroyed.

Combined treatment with neosalvarsan or allied products administered intravenously and emetin hydrochloride hypodermically will destroy motile amebae and cysts in over 80 per cent. of cases.

Report of cases treated.

Fallacy of drawing conclusions as to favorable results of treatment before sufficient time has elapsed.

Cases in this series under observation for at least two months and some for over a year following treatment. Observations on the effects of alcrestia, ipecac, emetin, bismuth, iodide and oil of chenopodium.

Discussion opened by ALFRED C. REED.

### 3. SCHISTOSOMIASIS IN CALIFORNIA.

ALFRED C. REED.

Definition. Geography and occurrence in United States. Clinical description and treatment. Prognosis. Report of four cases in San Francisco. Economic and social importance of the disease. Method of spread and intermediate host. Prophylaxis. Danger of endemicity in United States.

Discussion opened by HERBERT GUNN.

### 4. THE VALUE OF RENAL FUNCTIONAL STUDIES IN THE PROGNOSIS AND TREATMENT OF NEPHRITIS (projectoscope.)

SAMUEL W. HURWITZ.

1. A brief consideration of some of the more recent clinical chemical methods of testing the functional capacity of the kidneys. Reference will be made especially to the study of renal function by the determination of the power of the kidneys to eliminate some of the normal urinary constituents, fluid, salt and nitrogen.

2. The proper interpretation of such functional methods will be considered and their value in differentiating the different types of nephritis will be discussed.

3. Attention will be directed to those clinical chemical tests which afford the physician some information concerning the severity of the functional derangement and its prognosis.

4. The value of such functional tests as guides to the more rational treatment of nephritis will be presented and the rationale of limiting the protein and salt ingestion in such cases will be especially considered.

Discussion opened by A. S. CUMMINGS.

### 5. VINCENT'S ANGINA WITH A REPORT OF AN UNUSUAL CASE.

JOSEPH M. KING.

Brief review of the literature. Division of cases into mildly acute; severe acute, and long continued chronic cases. Relation of Vincent's Angina to diphtheria carriers. Symptomatology and treatment, with special reference to probable futility of various treatments so far suggested.

### 6. INTESTINAL OBSTRUCTION.

HARLAN SHOEMAKER.

Various kinds of obstruction. Duration of obstruction. Causes of obstruction.

(a) Hernias.  
(b) Volvulus.  
(c) Bands secondary to previous surgery. Conditions found at operation. Methods used to overcome the various mechanical obstructions.

(a) Without distention and fluids in the gut.  
(b) With distention and fluids in the gut.

Choice of anesthetic.  
(a) Ether.  
(b) Nitrous oxide.  
(c) Spinal anesthesia.

Disadvantages of a general anesthetic in obstruction cases distended with fluid. Time of depression caused by spinal and methods of overcoming this dangerous period.

Operative.  
Resection of the gut.  
Non-resection of the gut.

Post-operative treatment.  
Overcoming dehydration.  
(a) Due to obstruction.  
(b) Due to permanent drainage of gut.  
(c) Toxemia urea excretion from gut.

Conclusions.

### 7. RECONSTRUCTION OF THE HIP-JOINT (projectoscope).

ELLIS W. JONES.

Bone transplantation in the treatment of acquired paralytic dislocation of the hip.

Technique of operation. Indications for operation. Comparison with other methods.

Case reports—Paralytic Luxation of sixteen years' duration successfully operated by this method.

(To be illustrated by radiographs and lantern slides.)

Discussion opened by HARRY M. SHERMAN.

## Wednesday Afternoon

2:00 o'clock.

### 1. THE SUPPRESSION AND CONTROL OF VENEREAL DISEASES IN THE ARMY THROUGH MILITARY AND CIVIL CO-OPERATION.

COLONEL L. MERVIN MAUS,  
Medical Corps, U. S. Army,  
Dept. Surgeon, Western Dept.

### 2. VENEREAL DISEASE CONTROL IN CALIFORNIA.

HARRY G. IRVINE.

General need as War measure. Relation of the problem of prostitution. Conditions before the campaign started. What has been accomplished.

### 3. DISCUSSION OF EXPERIENCES OF MEDICAL ADVISORY BOARD NO. 5 (Draft Registrants).

GEORGE H. EVANS,  
HARRY M. SHERMAN,  
S. H. HURWITZ,  
FRANK. HINMAN.

### 4. AFTER-TREATMENT AND REHABILITATION OF THE WOUNDED (With Demonstration of Improved Apparatus and Lantern Slides).

LEO ELOESSER.

General principles. Stimulation of interest in recovery. Graphic methods of recording progress. Sir Robert Jones' principle of the orthopedic workshop. Uncertainty regarding compensation as a retarding factor.

After-treatment of head injuries.  
After-treatment of injuries to the extremities: shoulder, elbow, hand and fingers. Simple means and apparatus for the treatment of contractures.

Treatment of injuries to the lower extremity. Exercises in bed. Apparatus for bed-exercises. When to allow patients out of bed. Crutches.

After-treatment of palsies.

After-treatment of amputations; simple prostheses.

Discussion opened by EMMET RIXFORD.

### 5. INTESTINAL OBSTRUCTION—CLINICAL AND EXPERIMENTAL OBSERVATIONS.

G. H. WHIPPLE.

The non-protein nitrogen in the blood of individuals suffering from intestinal obstruction shows considerable fluctuation. Usually a high non-protein nitrogen indicates severe intoxication and a grave prognosis. The same observation holds in animal experiments.

The poison concerned in the intoxication of intestinal obstruction has been studied in considerable detail. Several substances may be concerned. Many chemical and physical reactions of this substance or group of substances have been studied by means of animal experiments. The substance is resistant to digestion and is not absorbed through the intact intestinal tract. It is produced by the activity of the intestinal mucous membrane.

Injection of this poisonous substance into the body causes profound modification of body metabolism. In sublethal doses this poison causes marked acceleration of nitrogen metabolism,—in other words, tissue autolysis in vivo.

The application of this knowledge to surgical practice will be discussed.

### 6. BLOOD TRANSFUSIONS. INDICATIONS FOR AND RESULTS.

A. H. ZEILER.

Review of the recent literature. Blood grouping and its relations to transfusions. Choice of donor. Technique for various methods of transfusion. Transfusion reactions. Various conditions and diseases in which transfusions are indicated. Analysis of cases transferred. Summary.

## Wednesday Evening

(Hour to be announced later.)

Address for members and their friends on "The Medical Reserve Corps."

MAJOR HENRY D. JUMP, M. R. C.,  
Committee on States Activities and  
Examinations, General Medical Board,  
Washington, D. C.

## Thursday Morning, April 18

9:00 o'clock.

### 1. AN ANALYSIS OF THE FIRST TWO HUNDRED CASES STUDIED AT THE SAN DIEGO DIAGNOSTIC GROUP CLINIC.

B. J. O'NEILL.

ROBERT POLLOCK.

Advance of modern diagnosis. Its distinctive value. Consultation groups. The Consultation Clinic as expressed in Boston. The Diagnostic Group Clinic as expressed at St. Luke's Hospital, San Francisco. Distinctive features of the San Diego experiment. Brief sketch of its work to date. Analysis of the first two hundred cases. Age, sex, period of invalidism, complaint of patient, diagnosis made, how verified, subsequent course of case—follow-up system employed—all cases included in this analysis were diagnosed from six to fourteen months ago. Conclusions drawn from various features of this analysis.

### 2. THE DIAGNOSTIC VALUE OF THE LUNG REFLEXES IN PULMONARY TUBERCULOSIS.

F. M. POTTENGER.

Inflammation of pulmonary tissue causes motor, sensory and trophic reflexes in the skeletal muscles, and in the

skin and subcutaneous tissue over them, the impulse acting through the sympathetics and the spinal nerves; also reflex motor and secretory disturbances in other internal viscera through the vagus and other branches of the cranio sacral division of the vegetative system. Vagus reflexes are sometimes counteracted by general toxemia stimulating the inhibitory action of the sympathetics and increasing flow of adrenalin. The explanation of these principles in the production of well established symptoms and clinical signs.

### 3. THE INTERRELATIONSHIP OF ASTHMA AND PULMONARY TUBERCULOSIS.

(Lantern).

PHILIP H. PIERSON.

Asthma often a symptom rather than a disease. Its existence in pulmonary tuberculosis is due to mechanical and toxic causes. Influence of asthma on already active tuberculosis. Latent tuberculosis may be predisposing factor in asthma. This type more frequent in children.

Discussion opened by F. M. POTTENGER.

### 4. SYPHILIS OF THE THYROID GLAND—REPORT OF A CASE.

EDWIN H. SCHNEIDER.

A short history of the cases previously reported will precede the report of my case.

The past history, clinical findings, laboratory findings, histological pictures and therapeutic results will be taken up in order.

Discussion opened by C. G. TOLAND.

### 5. THE PREVENTION OF CONGENITAL SYPHILIS BY INTENSIVE TREATMENT OF SYPHILITIC MOTHERS DURING PREGNANCY.

HANS LISSER.

I. The prevalence of congenital syphilis and difficulties of successful treatment.

II. Methods of Prevention:

1. Postponing marriage until prospective parents are cured.

2. Preventing conception until parents are cured.

3. Antenatal treatment of infected mothers during pregnancy.

III. Statistics showing:

1. Mortality among congenital syphilitics if mothers have not received any treatment whatsoever.

2. Results, when mothers are treated before pregnancy.

3. Results of Mercurial Treatment of pregnant mother.

(a) In active maternal syphilis.

(b) In latent maternal syphilis.

4. Results of Mercurial Treatment of Luetic mother before and during pregnancy.

5. Result of Salvarsan and Mercurial Therapy during pregnancy.

IV. Discussion of Antenatal Therapy and how it influences fetus via the placenta.

V. Detailed report of Antenatal Therapy upon seventeen Luetic mothers.

1. Effect of treatment upon mother.

2. Effect of treatment upon labor.

3. Effect of treatment upon newborn to date.

Discussion opened by FRANK LYNCH.

### 6. AUTOGENOUS COLON VACCINES IN TOXIC ECZEMA.

JAMES A. JACKSON.

RAWSON J. PICKARD.

Eczeema a symptom. Groups of cases due to external and to internal irritants. Fewer due directly to bacterial activity. To get etiologic treatment of each of various groups of cases requires coordination of many specialists, together with the dermatologist.

Cases due to bacteria may be grouped: (1) Local growth; (2) Focal infection; (3) Present group.

In several cases of toxic eczeema with indicanuria theory formed due to improper decomposition in bowel due to perverted metabolism of prevailing type of B. Coll. and immunization attempted with vaccines. Method. Dosage.

Case groups:

1. With much indican.

2. Little indican.

3. No indican.

Interpretation as confirming theory.

## Thursday Afternoon

2:00 o'clock.

### 1. BLOOD REGENERATION AFTER SIMPLE ANEMIA AS INFLUENCED BY DIETARY FACTORS.

C. W. HOOPER.

G. H. WHIPPLE.

The regeneration of hemoglobin and red blood cells after simple anaemia, induced by hemorrhage, can be influenced by will by modification of the diet. The curve of blood regeneration on a meat diet is very rapid, a matter of days or only a few weeks. The



curve of blood regeneration on a diet rich in carbohydrates is very slow, requiring several weeks or even months. A bread and milk diet, which has always been considered complete and adequate, may prolong simple acute anaemia months before complete blood regeneration takes place. In the case of splenectomized animals the anaemia usually results in death.

Dogs were used in the experiments. One-fourth of the total amount of blood was aspirated from one of the jugular veins on each of two successive days. The animals were then placed upon the test diets. The following blood studies were made at intervals varying from four days to a week until complete blood regeneration had taken place. The hemoglobin was estimated. The red blood cells, white blood cells, platelets, reticulated red blood cells and red blood cells containing mitochondria were counted. The hematocrit, plasma volume and total blood volume were estimated.

Bile-fistula dogs—animals whose bile is completely excluded from the intestinal tract—are able to manufacture hemoglobin and red blood cells with the same rapidity as normal dogs.

The influence of iron (Blaud's pills) and splenectomy on anemia will be discussed from a clinical standpoint.

## 2. A STUDY OF ACHYLIA GASTRICA BY THE FRACTIONAL METHOD (projectoscope). E. C. FISHBAUGH.

A. Technic of fractional study of gastric secretions.  
B. Consideration of cases of anacidity and delayed acidity.

1. Absence of hydrochloric acid and enzymes. (True achylia gastrica.)
2. Absence of hydrochloric acid but enzymes present.
3. Delayed stomach secretion. (Spurious or psychical achylia gastrica.)

C. Value of the fractional method in the differentiation of these types of cases.

D. Prognostic value of such a differentiation.

## 3. BLOOD PRESSURE STUDIES ON 300 NORMAL MEN BETWEEN THE AGES OF 19 AND 33 YEARS. BERTRAND SMITH.

All readings made in the recumbent position first. Comparison of pressure readings and pulse rate in changing from the recumbent to the standing position. The effects of measured exercise. The stair-climbing test used on stairs with six-inch rise. Effects noted on area of cardiac dullness, pulse rate, respiration, systolic and diastolic pressures, together with duration of the pressure phases. Recovery time measured.

Cases also analyzed according to the following:

1. Stone's overload factor.
2. Tiegerstedt's efficiency factor.
3. Goodman and Howell's CS:CW ratio.
4. Crumpton's vasomotor efficiency test.

The value of estimations of the second pressure phase and of recovery time after exercise. Importance of appreciating the marked effect of excitement and of the little value in first pressure readings. Value of some form of exercise test and of the vasomotor test as aids in the early recognition of disturbed functional and organic cardio-vascular efficiency.

## 4. THE PREVENTION OF POST-OPERATIVE GAS PAINS (Lantern). W. C. ALVAREZ.

In treating flatulence the writer believes the emphasis has been placed wrongly upon getting the bowel clean. The gas is commonly ascribed to fermenting material, but research workers agree that interference with the intestinal circulation is the important factor. Normally the gases arising in the bowel are taken up by the blood and excreted by the lungs. Purgation upsets this mechanism. It also paralyzes some regions of the gut and makes others unusually irritable. Accumulations of gas become trapped in weakened segments between more irritable ones. Research workers and many surgeons agree that the best way to avoid gas pains is to omit pre-operative purgation.

Discussion opened by W. I. TERRY.

## 5. PRACTICAL INFANT FEEDING; POINTS WHICH THE GENERAL PRACTITIONER SHOULD KNOW (projectoscope, blackboard, and accessories). LULU H. PETERS.

Causes of the failure of percentage feedings. Caloric standards. Whole milk formulas. Rules for computing easily mastered and remembered. Rules for feeding from birth. Weaning, diarrhea, constipation and vomiting in the artificially fed. Earlier feeding of strained vegetables, cereals and fruit juices. Results.

Discussion opened by A. J. SCOTT, Jr.

## 6. PITFALLS IN THE DIAGNOSIS AND TREATMENT OF SENILE HYPERTROPHY OF THE PROSTATE. ITS CONSIDERATION FROM THE GENERAL PRACTITIONER'S STANDPOINT. W. D. DAKIN.

Errors in diagnosis. Differential Diagnosis. The more dependable subjective and objective symptoms. What the family physician can do to make the prostatic more

comfortable and help prepare the patient for surgical intervention if that procedure is necessary. The patient's treatment at home, in the office or hospital.

Discussion opened by VICTOR G. VECKI.

## SCIENTIFIC EXHIBITS

1. Stanford University Medical School.
  - (a) Obstetrical Pathological Specimens from the Women's Clinic. ALFRED BAKER SPALDING.
  - (b) Specimens from the Eye Clinic. HANS BARKAN.
  - (c) Pathological Specimens from the Genito-Urinary Clinic. R. L. RIGDON.
2. Continuous Irrigation Apparatus for Bladder. FRANK HINMAN.
3. Eye, Ear and Nose Models. P. DE OBARRIO, College of Physicians and Surgeons of San Francisco.

## PROGRAM OF THE SECTION OF OBSTETRICS AND GYNECOLOGY

Chairman, J. Titian Coffey, Los Angeles.  
Secretary, A. B. Spalding, San Francisco.

### Tuesday Afternoon

2:00 o'clock.

#### 1. TREATMENT OF FIBROIDS BY X-RAY.

HENRY J. KREUTZMANN.

1. Exposition of the justification to obtain a symptomatic cure in view of the non-malignant character of fibroids of the uterus.
2. Tabulation of my own cases according to:

- a. Age.
- b. Kind of tumor.
- c. Size.
- d. Symptoms.
- e. Complications.
- f. Results.

3. Summing up the indications under these heads:

- a. Where X-Rays should be used.
- b. Where X-Rays should not be used.
- c. Where X-Rays may be used as a matter of choice.

Discussion opened by L. H. HOFFMAN.

#### 2. CESARIAN SECTION, INDICATIONS AND TECHNIQUE. LYLE G. McNEILE.

Historical data; development of Sanger operation; influence of decreasing mortality upon frequency of operation; change in accepted indications resulting from decrease in mortality; present furor will be succeeded by more sane conception of scientific indications; in considering methods of delivery must consider contraindications, maternal mortality, fetal mortality, immediate morbidity, subsequent morbidity due to operation. If these factors considered, Caesarian Section indicated only if it gives a lower mortality and morbidity than other methods of delivery.

Contracted pelvis, tumors, malpositions, eclampsia, placenta previa, premature separation of the placenta, may in selected cases indicate operation. Time of operation; preoperative treatment; anesthetic; high or low incision; control of hemorrhage; packs, method of suturing uterus; importance of carefully suturing abdominal wall; post-operative treatment; common complications, statistical table of author's cases.

Discussion opened by F. M. LOOMIS.

#### 3. RESULTS FOLLOWING OPERATIVE TREATMENT OF PELVIC INFLAMMATORY DISEASE IN THE STANFORD UNIVERSITY CLINIC. JOHN A. SPERRY.

Study of answers to questionnaire. Operative results. Remarks on differential diagnosis of pelvic inflammatory disease. Remarks and Quotations from Literature on Treatment.

Conclusions in regard to:

1. Conservative Medical Treatment.
2. Conservative Operative Treatment.
3. Radical Operative Treatment.

Discussion opened by H. P. NEWMAN.

#### 4. CONTRACTED BLADDER IN WOMEN. J. CRAIG NEEL.

The etiological factors in contraction of the bladder in women are: Chronic inflammation, complete incontinence of urine and foreign bodies; such as calculi and new growths, both benign and malignant. The pathology depends upon the primary cause, as well as the duration. The methods of treatment will be discussed, calling attention especially to the use of papaverine hydrochloride.

Discussion opened by FRANK HINMAN and A. LARTIGAU.

**Wednesday Morning, April 17**

9:00 o'clock.

**1. ELECTION OF OFFICERS.****2. PUBIOTOMY (Lantern).**

H. A. STEPHENSON.

A. Pubiotomy is not intended to supplant Caesarian Section.

It is often indicated:

1. In moderately contracted pelvis, where the test of labor fails to bring about spontaneous birth.
2. In funnel pelvis of pronounced degree especially in young women.
3. In primiparous patients who have large babies, which present by the breech.

B. Technique of the operation requires well-trained assistants and the facilities of a hospital.

C. Prognosis for both mother and child is good.

D. Report of cases.

Discussion opened by FRANK C. AINLEY.

**3. TREATMENT OF INOPERABLE UTERINE CANCER.**

FRANK W. LYNCH.

Types of uterine cancer and methods of growth.

Definition of operability and inoperability.

Operable cases seldom present other symptoms than bleeding or vaginal discharge.

We should exclude loss of weight and cachexia from our text-book considerations of cancer as a surgical phenomena.

Review of various methods of treatment of inoperable uterine cancer, comparing the actual cautery with the cold ion and the so-called Percy methods vs. acetone.

Report of cases treated with radium.

Discussion opened by CHESTER J. TEASS.

**4. RADIUM IN THE TREATMENT OF UTERINE CANCER WITH CASE REPORTS (projectoscope).**

REX DUNCAN.

The author will discuss briefly the dose and technic of application and the histological action of radium in uterine cancer, with special reference to recurrent and inoperable cases. Recent literature on the subject will be briefly reviewed and about fifty cases treated during the past two years by the author will be reported in diagrammatic form.

Discussion to be opened by CHESTER J. TEASS.

**PROGRAM OF UROLOGIC SECTION****Tuesday Morning, April 16****1. THE DIAGNOSTIC SIGNIFICANCE OF TUBERCLE BACILLURIA.**

LEWIS MICHELSON.

Does the finding of Tubercle Bacilli in the urine indicate a tubercular process in the genito-urinary tract in all cases, or may it be an excretory bacilluria from a wholly different focus?

Report of cases.

Discussion opened by FRANK HINMAN.

**2. GONORRHEA AND SYPHILIS IN WOMEN.**

WM. E. STEVENS.

Anatomical and functional differences between the male and female genito-urinary organs. The influence of the position of the urethra upon infections of the urinary tract. Skene's glands and their importance in diagnosis and treatment. Organisms found in infections of the cervix. Bartholin's glands and urethra. The complement fixation test for gonorrhea in women. Pathological conditions of the bladder, ureter and kidney, more common in women and the influence of pelvic conditions upon the etiology of the same.

Discussion to be opened by JOHN A. SPERRY.

**3. A PLEA FOR A COMPLETE UROLOGIC DIAGNOSIS AT ONE SITTING (projectoscope).**MARTIN KROTOSZYNER.  
GEO. W. HARTMAN.

In the majority of renal lesions and particularly in conditions suggestive of involvement of the genito-urinary tract, the various urological diagnostic methods are usually practiced at several sittings, necessitating repeated instrumentation entailing pain, discomfort and loss of time.

These disadvantages are obviated by the application of our method, which combines reliable diagnostic results with least discomfort to the patient at one sitting and which, under favorable circumstances, can be completed in about one hour.

Description of technique.

Presentation of tables of normal and pathological cases.

Conclusion.

Discussion opened by FRANK HINMAN.

**Tuesday Afternoon****1. SEMINAL VESICULOTOMY IN THE TREATMENT OF GONORRHEAL RHEUMATISM.**

JAMES R. DILLON.

Slow appreciation of the value of operations for chronic seminal vesiculitis. Mechanical difficulties for spontaneous drainage, due to anatomy and pathological changes. Review of literature recording brilliant operative results of seminal vesiculotomy for gonorrheal rheumatism. Bacteriology of the infection. Pathological changes. Function of the seminal vesicles and effects of operations on.

Report of cases.

Conclusion.

**2. SOME EXPERIENCES IN THE TECHNIC, PRE-OPERATIVE AND POST-OPERATIVE TREATMENT OF SUPRAPUBIC PROSTATECTOMY CASES.**

HERBERT A. ROSENKRANZ.

A discussion of the pre-operative conditions that influence prognosis. Results in tabes, pulmonary and urogenital tuberculosis, endocarditis and myocarditis, cachexia, malignancy, epididymitis, cystitis, neuritis, acute and chronic uremia. Indications for the two-stage operation.

Technic: Armamentarium, choice of incisions, method of enucleating and drainage, accidents, secondary operations, fistulae, spinal anesthesia, hernia. Remarks on clinical pathology with demonstrations of specimen.

Post-operative treatment: The avoidance of hemorrhage, embolism, sloughing and gaping of wound, delirium, renal and cardiac insufficiency.

**3. DIAGNOSIS AND TREATMENT OF GLANDULAR OBSTRUCTION AT THE NECK OF THE BLADDER. (Projectoscope.)**

LOUIS CLIVE JACOBS.

Enlargements at the neck of the bladder.

A consideration of the anatomical, pathological and clinical manifestations.

Discussion of case history with results of fulgurating methods for their eradication.

Lantern slide demonstration.

**4. ULCER OF THE BLADDER.**

ARTHUR B. CECIL.

Under the term "Ulcer of the Bladder" will be considered only what might be called simple ulcer, that is, ulcer in which the urine from the kidneys is negative and which is independent of a general cystitis, the bladder urine being normal to culture. Tuberculous ulcer is not considered in this group. Historical consideration, review of the literature, report of two cases with operative findings, pathological reports and post-operative notes.

Discussion opened by WILLIAM E. STEVENS.

**Wednesday Morning**

9:00 o'clock

**1. DIVERTICULA OF THE URINARY BLADDER WITH SOME ASSOCIATED CLINICAL AND PATHOLOGICAL CONDITIONS, ILLUSTRATED BY PYELOGRAMS.**

M. MOLONY.

What is a Diverticula, the etiology of diverticula, true and false diverticula, the important role diverticula play in their progress of destruction not of one kidney alone but it may be of both kidneys.

Radiograms illustrating a variety of phases in the pathological history of these conditions from (a) early obstruction and atony of the ureter to hydronephrosis atrophy and death of the kidney; (b) from early infection and interference with the ureter to dilatation pyonephrosis, perinephritis, pyelonephritis and death of the patient.

The clinical history of cases showing the marked intermittency of symptoms, the long intervals of apparent immunity from any serious trouble in the different stages during which the kidney is being quietly destroyed.

**2. EXPERIMENTAL RENAL INFECTION CARRIERS.**KARL FREDERICK MEYER.  
FRANK HINMAN.

Experiments to produce typhoid renal carriers in rabbits by various methods will be described.

The discussion of the results will permit of some consideration of the pathogenesis of pyelonephritis and allied renal infections due to bacteria of the colon typhoid group.

### 3. ACUTE AND SUB-ACUTE UNILATERAL INFECTIOUS SUGICAL NEPHRITIS WITHOUT PYURIA FROM THE AFFECTED SIDE.

ROBERT V. DAY.

Report of three cases with post-operative pathological study.

Report of a case of gonorrheal pyelo-nephritis. Discussion opened by FRANK HINMAN.

### 4. FOCAL RENAL INFECTIONS.

LEON JOSEPH ROTH.

Report based on cases showing certain similar constitutional symptoms and wide variance regarding local manifestations and end results. Purpose of report to demonstrate uncertainty regarding course of infection, pathology and terminology. Severity of actual bacillary infection not parallel to symptoms or local and general manifestations.

Case histories. Pyelograms. Specimen.

## \*NEUROLOGIC SECTION

Wednesday, April 17

2:00 o'clock.

### 1. PROGNOSIS AND TREATMENT OF CENTRAL NERVOUS SYSTEM SYPHILIS.

R. W. HARVEY.

Nervous system involvement frequently due to:

Insufficient treatment in primary stages.

Erratic treatment.

Patient's indifference.

Economic factors.

Involvement may follow rapidly on initial stage in spite of vigorous treatment.

Importance of frequent clinical examinations:

"Rheumatism," nervousness, lassitude, incontinence, stomach trouble.

Importance of frequent laboratory tests:

Wassermann test.

Spinal fluid examination.

Special spinal fluid tests in central nervous system involvement:

Lange's colloidal gold.

Mastic test.

The Wassermann test as an aid in treatment.

The treatment of general paresis:

Usual clinical history in early cases.

Results of clinical examinations.

The special spinal fluid tests.

Treatment and results.

Treatment of Tabes and cerebro-spinal lues:

Usual clinical history and examinations.

Spinal fluid tests.

Treatment and results.

Other forms of nerve syphilis, examinations and results of treatment.

Status of intraspinal therapy:

Swift-Ellis and Byrne methods.

Laboratory control of this form of treatment.

Its administration to be specialized by trained men with laboratory facilities.

Conclusions:

Vigorous and prolonged treatment of every case of syphilis the best guarantee against involvement of the nervous system.

Value of clinics in treatment of syphilis.

Co-operation of State laboratories with physicians in making examinations.

### 2. THE PASSAGE OF DRUGS FROM BLOOD SERUM TO SPINAL FLUID (proiectoscope).

H. G. MEHRTENS.

#### I. In normal states of choroid:

1. Choroid practically impermeable excepting for few substances, such as urotropin.

(a) Anti-bodies may not pass either way, e. g. Wassermann reaction.

1. Virus of infection may not pass barrier.

#### II. In abnormal states of the choroid:

1. In meninges, drugs such as bromides, salicylates, uramin may permeate.

2. Experimentally—choroid upset by drainage of Spinal Fluid. Injection of serum, human or horse—salines.

3. Potassium iodid will pass from serum to Spinal Fluid only when horse serum has been previously injected into the spine and causing aseptic meningitis. Arsenic is being treated in the same way.

#### III. Conclusions:

1. In diseases of meninges, extensive intravenous therapy is of advantage as certain proportions of drugs will pass the damaged choroid.

2. Certain drugs, including Sodium iodide, may be caused to pass from the blood to the Spinal Fluid in appreciable quantities by damaged choroid in injecting horse serum into spine.

3. The present therapeutic methods, such as Swift Ellis treatment and drainage, probably depend upon the same principles.

4. To get best results it would seem reasonable to reverse Swift Ellis treatment and give the

serum intraspinaly before the Salvarsan is injected.

Discussion opened by WALTER F. SCHALLER.

### 3. PERSONAL EXPERIENCES WITH THE MENTAL RATING TESTS IN ADULT NEUROLOGICAL CASES—WITH CASE REPORTS.

ARTHUR RITTER.

Importance of differentiating dementias and amments.

Experiences in epilepsy, the feeble-minded, brain tumors and paresis—Diagnostic significance—Discussion of the possibility of localizing brain lesions by psychologic examinations—Mutism without deafness—Brain lesions without mental symptoms.

Outlines of tests used.

### 4. SPINAL FLUID FINDINGS IN HERPES ZOSTER.

W. F. SCHALLER.

The results of cerebro-spinal fluid findings in 21 cases of Herpes Zoster are discussed with especial reference to etiology.

The most important theories of causation are briefly reviewed.

Discussion opened by Norbert J. Gottbrath.

### 5. CEREBRAL OEDEMA IN CRANIAL TRAUMA.

A. S. LOBINGIER.

Synopsis:

The increasing number of injuries to the brain from motor accidents should inspire a keener analysis of the pathology of the brain and meninges in these injuries.

Oedema is consequent from concussion as well as contusion, and is in no sense secondary in importance to hemorrhage in intracranial tension.

The relation of blood pressure, fluid tension in the spinal canal and papilloedema to cerebral oedema.

Destructive changes occur if oedema is not promptly relieved by decompressive measures.

The approved methods of surgical relief.

### 6. THE TREATMENT OF EPILEPSY.

M. B. LENNON.

Observations derived from 200 cases. Etiology. Mental make-up of epileptic. Luminal treatment—Observations on its use in 110 patients.

Discussion opened by RICHARD HARVEY.

## PROGRAM, EYE, EAR, NOSE AND THROAT SECTION

Tuesday Afternoon, April 16

2:00 o'clock.

Symposium on Relation between Pathologic Brain Conditions and Eye, Nose and Throat.

### 1. OPHTHALMOLOGIC ASPECT.

WM. F. BLAKE.

OPHTHALMOLOGY AND INTRACRANIAL TROUBLE

Investigation of eyes in such cases should include:

study of fundus, ocular palsies, loss of conjugate movements, papillary disturbances, corneal reflex, nystagmus, changes in visual fields and in threshold light perception, optic aphasia.

Importance of these symptoms as an aid in any intracranial localization study, value of observed eye symptoms as aid in prognosis and as index of progression or retrogression of cranial lesion. Eye condition may frequently decide question as to advisability of palliative surgery either in presence or absence of definite localization.

2. OTO-LARYNGOLOGIC ASPECT.

H. B. GRAHAM.

The Relation between the Labyrinth and the central nervous system will be reviewed with special attention to the physiology, and the pathology of the region will be illustrated by typical cases.

3. NEUROLOGIC ASPECT. (Lantern.)

W. F. SCHALLER.

General considerations and experiences in thirty cases of Brain Tumor—Nature of growths—Rarity of Gummata—General and Local Symptomatology—Mental Symptoms—Advisability of Lumbar Puncture as a Diagnostic Aid—Value of X-Ray Examinations—Diagnosis and differential Diagnosis—Uremia—Syphilis—Serous Meningitis—Meningiomas—Results of Treatments—Illustrative Cases.

4. SURGICAL ASPECT. EMMET RIXFORD.

5. INTRACRANIAL COMPLICATIONS OF DISEASES OF THE EAR, NOSE AND THROAT.

HILL HASTINGS.

No attempt has been made in this paper to review the commonly known intracranial complications. Attention is directed to some of the uncommon conditions of the ear, nose and throat that may cause intracranial trouble.

Ear Cases.

No. 1. A report of a case of caries of petrous pyra-



mid; the result of chronic middle ear suppuration; death from meningitis; autopsy.

No. 2. A case of temporo-sphenoidal brain abscess from acute middle ear suppuration successfully operated with apparent recovery, followed by secondary sub-dural brain abscess at the vertex; autopsy findings.

No. 3. A case of extra-dural abscess from middle ear suppuration, left side, with involvement of the speech centre; slight delirium, operation, drainage of extra-dural abscess; recovery without any brain exploration.

#### Nose and Throat Cases.

Suppuration of the accessory sinuses. Intracranial complications in untreated cases are comparatively rare. On the other hand, intracranial complications as the result of radical operations, in proportion to the number of cases so operated, are much more common. Passing of the era in which American surgeons were led astray by over-enthusiasm for the radical (supposedly efficient) surgery advanced principally by the German and Austrian nose and throat surgeons. The number of deaths recorded in literature. Many deaths not reported. The writer reports three fatal cases seen in consultation, death apparently due to radical ethmoid operation. Radical ethmoid surgery without existing complications not free from danger to life. A report of five cases of sarcoma of the sphenoid region; autopsy in two cases where intracranial complications were the cause of death. One case, meningitis from secondary suppuration; in the second case death from softening of the whole right side of cerebrum, due to pressure of the tumor on the cerebral vessels. The early signs of sarcoma of the sphenoid region were seen in the naso-pharynx; the earliest symptoms complained of being deafness and pain in the ear.

### Wednesday Morning, April 17

9:00 o'clock

#### 1. TONSILLECTOMY IN SYSTEMIC DISEASES.

J. A. BACHER.

##### Fibrositis and Tonsillectomy.

This paper will have as its nucleus a statistical study of the effects of tonsillectomy in cases of fibrositis, nephritis and endocarditis in patients in the Leland Stanford Junior Medical School clinics the past five years.

As an introduction the etiology of fibrositis will be reviewed. Neuritis and neuralgia are terms that are used with considerable uncertainty and they will be differentiated. Conclusions will be deduced as to the indications for tonsillectomy.

#### 2. REPORT OF UNIQUE EYE CASES.

V. HULEN.

1. Divergent strabismus with vicarious fovea.
2. Young child with perfect vision and fusion, not cured by glasses.
3. Young child with poor vision one eye, cured by glasses.
4. Extreme Squint, voluntary fixation either eye cured by operation.
5. Exophoria not relieved by double tenotomy and double tucking under ether anesthesia.
6. Spontaneous external ocular hemorrhage in young healthy student.
7. Operated Exostosis Orbit.
8. Sarcoma of conjunctiva "cured."
9. Extensive monocular choroidal changes in father and daughter, same pictures, different causes.
10. Tubular field and normal vision in simple glaucoma.
11. Glaucoma, poor vision greatly improved by double trephining.
12. Glaucoma, long duration, 20/200 vision restored to 20/20 in 24 hrs. by eserine alone.
13. Single, vertical gunshot destroyed both eyes.
14. Loss of vision of both eyes eventually, following Cataract operations in diabetic subject.
15. Recovery of vision in cataract case without surgical or medical treatment.
16. Monocular, extreme Electric Ophthalmia.

#### 3. EYE QUALIFICATIONS FOR AVIATION CORPS.

W. S. FRANKLIN.

Necessity for careful examination of muscles; acuity of vision; color sense and stereoscopic vision, minimum requirement and leeway allowable. Analysis of results obtained in the examination of numerous candidates.

#### 4. TRAINING OF FIXATION AND FUSION IN STRABISMUS.

K. PISCHEL.

An operation will often be prevented or if found necessary better results will be insured by the improvement of sight of the squinting eye and by the increase of the fusion power.

#### 5. EAR TESTING BY BARANY METHOD.

F. A. BURTON.

Short history of this work.

My impressions in labyrinthine testing in Vienna and before going and after returning.

Brief consideration of labyrinthine anatomy and physiology.

Practical value to general practitioner, internist, surgeon, neurologist, ophthalmologist, as well as otologist. Understanding of the work often essential in differential diagnosis.

Increasing usefulness of the tests is certain as they become more generally understood.

It behooves every otologist to qualify. By too many physicians labyrinthine testing is considered beyond human understanding.

An effort is made to present the subject in a clear and concise manner, without going extensively into border-line cases; to make practicable, time saving, to simplify.

All doing this work should watch their technic, be careful, thorough, and remember there is seldom labyrinthine pathology but often faulty technic.

Description of improvised turning chair.

### Wednesday Afternoon, April 17

2:00 o'clock

#### 1. CLINICAL RESULTS FOLLOWING PROPHYLACTIC TREATMENT WITH SILVER NITRATE FOR BLENNORRHEA NEONATORUM.

A. B. SPALDING.

A brief review of the results obtained with Silver Nitrate, 2% and Silver Nitrate, 1% instilled into the eyes of the new-born.

Fifteen hundred case histories of babies born in the Obstetrical Ward at Lane Hospital. Women's Clinic Service of the Stanford University School of Medicine.

Importance of good technic to be sure that Silver Nitrate Solutions actually enter the conjunctival sack. The cases of Silver Nitrate and mild conjunctivitis cases will be discussed in detail.

No case of severe eye infection has been encountered in this series.

Several case reports of severe eye infection encountered in the Outpatient Service will be discussed in detail. The results obtained with Silver Nitrate 2%, in a series of fifteen hundred home confinements will be compared with the hospital series.

#### 2. NASAL REFRACTURE.

L. L. STANLEY.

Of 2000 San Quentin prisoners examined on entrance 15% had deflected septa, and 11% deformed noses.

Deformities largely due to improperly set nasal fracture, caused by violence. To repair deformity, it is necessary to refracture bones of nose. Accomplished by applying sufficient force to convex side of nose with buffer and mallet. Nitrous oxide or ether rauch used as anesthetic. After refracture, nose easily restored to normal shape, and retained by intranasal and extra-nasal plaster cast.

As records of case, pictures are taken, and death masks before and after operations are made.

#### 3. TREATMENT OF DIPHTHERIA CARRIER WITH ESPECIAL REFERENCE TO TONSILLECTOMY.

F. E. DETLING.

Treatment of the Diphtheria Carrier with special reference to Tonsillectomy.

Definition of Diphtheria Carrier. Various forms of treatment, classified under 1—biological products; 2—chemical products; 3—mechanical. Brief report of a series of cases.

### Thursday Morning, April 18

9:00 o'clock

#### 1. GRANULOMA OF THE LARYNX.

MACKENZIE BROWN.

Report of case following injury. Removal by direct method, recurrence and removal twelve times by indirect method. Recovery.

Discussion opened by H. A. KIEFER.

#### 2. A REPORT OF TWO CASES OF SARCOMA OF THE CHOROID.

B. F. CHURCH.

Special attention called to the similarity of symptoms, in the early stages of sarcoma of the choroid, to simple detachment of the retina and acute glaucoma. Importance of early diagnosis. Theories of simple detachment of the retina and its relation to neoplasms. Report of two cases of sarcoma of the choroid.

#### 3. DRUGS IN RELATION TO EAR, NOSE AND THROAT TREATMENT.

H. Y. McNAUGHT.

In the early days of Rhinology and Oto-laryngology, the treatment of diseases of ear, nose and throat was largely by drugs. With increase in knowledge of the causation and treatment of these conditions, the uselessness of much of the treatment by medication has been realized, till now by far the greatest place in treatment falls to surgery.

However, our text-books unfortunately still perpetuate in many cases these exploded ideas of therapy, as do also a large number of practitioners.

Our own specialty is not entirely guiltless and it is to voice a protest against such useless and often harmful treatment that this paper is presented and at the same time make mention of those drugs which we now accept as of use.

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### PERSONNEL OF THE HOUSE OF DELEGATES.

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**Alameda.**  
L. P. Adams (1) W. A. Clark (1)  
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W. W. Cross (2)

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**Humboldt.**  
L. P. Dorais (1)

**Imperial.**  
**Kern.**  
F. J. Gundry (1) J. P. Hull (2)  
F. A. Hamlin (2) T. W. McNamara (1)

**Lassen-Plumas.**  
**Los Angeles.**  
(Names to appear on Official Program.)

**Marin.**  
John H. Kuser (1) A. H. Mays (1)  
L. L. Stanley (1)

**Mendocino.**  
Oswald H. Beckman (1)

**Merced.**  
**Monterey.**  
Martin McAulay (1) H. C. Murphy (1)

**Napa.**  
**Orange.**  
H. A. Johnston (2) J. L. Maroon (2)  
H. M. Robertson (2) J. P. Boyd (2)

**Placer.**  
E. E. Ostrom (1) H. N. Miner (1)

**Riverside.**  
J. C. King (2) L. M. Ryan (2)  
H. R. Martin (1) A. W. Walker (1)

**San Benito.**  
**San Bernardino.**  
D. C. Strong (1) C. L. Curtis (1)  
B. F. Church (1) P. M. Savage (1)

**San Francisco.**  
H. E. Alderson (1) J. H. Graves (1)  
P. K. Brown (1) H. C. Moffitt (1)  
F. B. Carpenter (1) Emmett Rixford (1)  
W. B. Coffey (1) A. B. Spalding (1)  
G. E. Ebright (1) A. J. Zobel (1)  
H. W. Gibbons (1) V. G. Vecki (1)  
W. C. Alvarez (2) Frank Hinman (2)  
W. W. Boardman (2) H. C. McClenahan (2)  
Leo. Eloesser (2) Howard Morrow (2)  
G. H. Evans (2) Wm. Ophuls (2)  
W. S. Franklin (2) R. K. Smith (2)  
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### DELEGATES. ALTERNATES.

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**Solano.**  
**Sonoma.**  
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**Tulare.**  
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**Tuolumne.**  
**Ventura.**  
W. E. Bates (2) M. W. Ward (2)

**Yuba-Sutter.**

### NOTICE.

The following Counties have not reported their delegates nor alternates for the coming State meeting to be held at Del Monte, April 16, 17 and 18: Contra Costa, Glenn, Imperial, Lassen-Plumas, Merced, Napa, San Benito, Siskiyou, Solano, Tehama, Tuolumne, Ventura, Yuba-Sutter.

(Continued from Page 184.)

or to refractive error, are usually physically more backward than those with normal eyes. They form a group distinguished by being shorter, thinner, shallower and less active physically than their companions. Exceptions of course occur frequently.

To close—thorough ocular examination of mentally retarded children should never be omitted. A small number will be remarkably improved by proper glasses. In those not amenable to ocular improvement, we obtain by this examination, from the social and economic standpoint, an index of what kind of work in the future as far as their vision is a factor, they may be expected to do, and educate them accordingly.

### CONGENITAL OCCLUSION OF THE CHOANAE OF THE NOSE.\*

H. Y. McNAUGHT, M. D., San Francisco.

Congenital occlusion of the choanae of the nose has been recognized since the year 1830, when the condition was seen post mortem by Otto. It was later first reported as seen in the living by Emmert in 1854. Up to 1904 Schmielglow had collected sixty-four cases from the literature and in this series it was shown that more women than men were affected and that when the condition was unilateral, occurred more on the right than left side. Although so far, only about one hundred cases have been reported, there are reasons for believing that they are of more frequent occurrence than generally supposed.

One reason for this belief is that cases of unilateral occlusion have been discovered during examination of patients who were unaware of its existence or who suffered so little inconvenience that they had never sought relief for it. Another reason is that certain cases of supposed asphyxia neonatorum have been observed in which such occlusion has been the cause. Such a case was reported by Richardson in 1914. It is only too possible that many such cases have been classed as asphyxia neonatorum in the past. The causative factor is, of course, some departure from the normal embryological development.

It may not be amiss here to briefly review the development of part under discussion. "The primitive nasal capsule develops as a part of the primordial cranium. From that part which extends forward beyond the anterior portion of the notochord a core is formed for the frontonasal process—a relatively broad mass of tissue separating the nasal pits. The nasal pits are symmetric depressions, at first pyriform in outline, with the small ends toward the primitive mouth cavity. As the process globularis on the lateral portion of the medial nasal process approximates the lateral nasal and maxillary processes, there is a deepening of the primitive nasal fossae and a change in their form, which becomes oval and bordered by broad folds. The broad median process separating the depressions later becomes narrowed and forms the septum nasi. By the approximation of the nasal processes inferiorly, their ectodermal coverings are

brought into contact. The intervening ectoderm is resorbed, and the processes become united by mesoderm, which forms the floor of the primitive anterior nares. In the fifth week, or shortly thereafter, by the partial resorption of ectodermal cells filling the remaining interspaces between the median and lateral nasal processes, there is formed behind the os intermaxillare the primitive ductus nasopharyngeus. Posteriorly, there persist for a short while the membranae buconasales, which break through and form the primitive choanae at a time somewhere between the twenty-eighth and fortieth day—the observations of the different embryologists varying to that extent."

Now a failure of absorption of this membranae buconasalis would result in membranous occlusion and it is conceivable that bone deposits might ultimately change the character of this barrier.

Hochheim believed the growth arose from the palate bone. Luska believes it occurs from the upward and backward growth of the horizontal plate of the palate bone. Kundrat, to an ingrowth of the vertical plates of the palate bone. The condition may be either uni or bilateral and the septa complete or only partial.

The symptomatology differs, of course, with the degree of obstruction. In adults with both sides completely occluded, the chief symptom is nasal obstruction. Headache may be complained of and a nasal voice is noticeable. Deafness in some degree usually results and anasmia exists in all cases. When only one side is occluded the patient may not know he has any obstruction to breathing. The secretions of the nose cannot be expelled and are found to be of a peculiarly gelatinous character and may irritate the lip and alae. A symptom mentioned by one author is that when the patient cries the tears run out of the nose. However, these diagnostic signs are all secondary to that of direct inspection and are not pathognomonic of this type of obstruction.

In asphyxia in infants due to this cause the symptomatology is important, as here inspection is difficult or impossible. Richardson has described such a case. He says that a child born with complete nasal occlusion will not be able to breathe, as mouth-breathing is an acquired habit, so the child becomes cyanotic and cries. This crying relieves the cyanosis. The cyanosis being relieved, the child stops crying and soon becomes cyanotic again. In the diagnosis of the condition in new born he suggests the use of the probe and also filling the naris with solution which should run back into naso-pharynx, if no other obstruction exists. So that where we see this cycle in the new born we should think at once of nasal occlusion. The treatment of this condition in children consists in keeping the mouth open and the tongue pulled forward till surgical relief can be secured.

In adults the operative efforts have all been directed towards destroying the obstruction and afterwards keeping the choanae open. They have all been of the same type and have all had to cope with the obliteration of the opening by granulation tissue, which occurs with great rapidity in this space. Katz suggested burring out the plate and also removing part of the posterior end

\* Read before the Forty-sixth Annual Meeting of the Medical Society, State of California, Coronado, April, 1917.



of the vomer. It appears that Uffenord first suggested the submucous removal and use of the membrane over anterior surface of the obstruction.

In April, 1915, Thomasson reported a case of unilateral bony occlusion operated by a submucous route. The chief feature of his operation was the formation of a mucous membrane flap to cover the wound in the floor. It, however, left three bare, bony surfaces to granulate and, moreover, is impossible of performance in such a case as the one I am to describe.

In January, 1915, a woman aged 35, presented herself at the Nose and Throat clinic of Stanford University, Medical Department. She complained only of deafness in the right ear and of some discharge for the last two months from the right nostril. Examination: Ear-catarrhal otitis media chr. Right ear. Nose—left side normal; right side full of muco-purulent material of a peculiar gelatinous consistency which she was unable to expel. By mirror post-nasally was seen a complete obstruction of the right choana which, on probing, was found to be hard. This extended from the floor to the sphenoid, and from the posterior end of the vomer to the lateral wall. Pus was seen under the middle turbinate after wiping the naris clean. In view of the history of a pneumonia two months before, and this discharge having supervened, I probe-punctured the right antrum and aspirated some pus which was cultured and the chief organism found to be the pneumococcus. What was the source of infection here since the closure of the choana prescribed the air as carrier?

Not having, at that time, seen any operation described except obliteration of the obstruction, I thought of approaching it by the septal route, raising the mucosa from the anterior face of the obstruction and using the flap thus obtained to cover the bony wound in the floor and roof by splitting it transversely. The procedure was very easily carried out so far as the removal of the septum submucously and the dissection of my flap from the face of the obstruction. I found, however, that the removal of the bony wall was very difficult, owing to its thickness and the abnormal lowness of the sphenoid. Chiseling was difficult for the same reasons and also on account of the proximity of the Eustachian tube. Necessity forced the next step of the operation which was, in brief, to short circuit the air by removing a portion of the posterior end of the septum itself. This was done with a Wagner's forward-biting antrum punch, though other instruments could be used for that purpose. The opening thus made was adequate, has remained free, and has required no attention since.

The advantage of such an opening is that it has a tendency to enlarge up to a certain point and will not close in by granulations. While it is advisable to bite or drill out as much of the obstruction as possible, the essential part of the operation, after removal of the septal bone, is the formation of a new choana, as it were, by the removal of a portion of the posterior end of the septum. This simply shortens the length of the

septal base. The illustration will make further description unnecessary.

One other point about this case may be of interest. On being tested by some of the essential oils, as to her sense of smell on the right side, after an opening had been established, it was found that she could detect the odor at once on inhalation; olfactory nerves were developed, although never used.

#### KIDNEY INFECTIONS IN WOMEN.\*

By WILLIAM E. STEVENS, M. D., San Francisco.

Anatomical differences in the female pelvic organs, as well as the physiological changes and the frequent pathological conditions associated with pregnancy and the puerperium, are factors of importance both in the etiology and treatment of renal infections. The shortness of the urethra, together with its closer proximity to the vagina and rectum, has a direct bearing upon the much greater frequency of colon bacillus infections in women, and when we consider that the majority of infections of the upper urinary tract are due to the latter organism, the importance of sex in relation to pathological conditions of the kidney is obvious. Likewise the intimate relationship existing between the venous and lymphatic plexuses of the female sexual and urinary organs is a factor of much significance.

The routes of infection are hematogenous, lymphogenous through the inter-communicating lymphatics of the kidney, ureter, bladder, pelvic organs and colon and by direct extension upward from the lower urinary tract. The hematogenous and lymphatic routes have been repeatedly demonstrated, while the fact of the far greater prevalence of these conditions in females in whom the urethra, vagina and rectum are in such close proximity lends support to the theory of direct infection.

Regardless of the manner in which bacteria gain access to the pelvis of the kidney, obstruction, to the outflow of urine, traumatism or lowered resistance from some cause must be present in order that pathological conditions develop. Bacilli are constantly passing through the kidney and the urethral orifice is often bathed in purulent secretions without the development of renal lesions or urethritis. Strictures, distortions of the ureter due to displacement of the uterus and extraureteral pressure favor stasis and consequent infection. Stones in the kidney producing both obstruction and trauma lead to a similar result.

Infections of the upper urinary tract are probably always secondary, the primary focus being found in the intestinal tract in infections due to the colon bacillus, in the lungs when the tubercle bacillus is responsible and in the lower urinary tract, tonsils, ears, teeth or skin when the cocci are the offending organisms.

The majority of observers have found the colon bacillus first, the tubercle bacillus second and the coccus group last in order of frequency. In twenty-five of my own cases under recent obser-

\* Read before the San Francisco County Medical Society, May 29, 1917.

vation the colon bacillus was present eleven times, the coccus eight, the tubercle bacillus two and a mixed infection of colon bacillus and coccus four times. The cocci are more frequently seen in acute conditions although less common than the colon bacilli.

Although later almost complete destruction of the kidney may occur from diffuse inflammation the lesions produced by the colon bacillus are at first limited to the pelvis and tubules and are consequently productive of much pus in the urine. They are responsible for the conditions known as pyelitis, pyelonephritis or diffuse inflammation of the kidney without abscess formation and pyonephrosis. The coccus group on the other hand exert their influence upon the cortex and subcortex and pus is often absent from the urine. Circumscribed abscesses as well as diffuse suppuration, perinephritis and perinephritic abscesses are due to these organisms. A mixed infection caused by a combination of the above groups may occur at times and is often most confusing.

From a consideration of these facts the conclusion is drawn that the diagnosis of kidney lesions is obviously incomplete without a correct determination of the infecting organism. This is accomplished by the cultural examination of fresh urine, a procedure which is often neglected even by the urologist. While some authorities go so far as to claim that the nature of the infection may be ascertained by means of functional kidney tests, my experience with the combined phenol-sulphonethalein, intravenous phloridzin and urea tests in a large number of estimations leads to the conclusion that this is not always true as the amount of destruction of kidney tissue accompanying any type of infection is an important factor in the resulting values.

There is also a tendency at the present time to classify all cases of pyelitis as pyelonephritis. While it is probably true that the infectious process is never entirely limited to the pelvis I think the latter term should be reserved for those cases exhibiting sufficient parenchymal involvement to produce a diminished renal function and the former used when normal functional values are found.

The treatment of colon bacillus infections consists first in the correction of associated pathological conditions, either primary or secondary, after which measures directed toward the destruction of the bacillus are in order. There are a number of groups of colon bacilli, the members of which exhibit differences in cultural characteristics and in virulence. Corresponding to these groups we see four types of infections varying in accordance with their resistance to treatment. The first type clears up after one or two ureteral catheterizations, probably through the relief of some slight obstruction. The second runs a course of from two to four weeks before recovery, while the third becomes chronic. The fourth type, an acute unilateral virulent infection is rapidly fatal without nephrectomy.

Drainage of the pelvis through the ureteral catheter, together with the proper adjustment of

the reaction of the urine by the administration of drugs increasing or decreasing its acidity or alkalinity, following the recently advocated determination of the range of acid production of the bacillus, are of most value. Pelvic irrigations with one-half to one per cent. silver nitrate solutions and urinary antiseptics such as hexamethylenamin internally are also beneficial. The latter drug, however, is usually given in too small doses. As much as two grams may be given every four hours without deleterious effects. It is also to be remembered that urotropin is valueless in urine not decidedly acid, consequently frequent determinations should be made not only of the reaction of the urine but also for the presence of formaldehyde.

Nephrectomy is necessary in virulent unilateral hematogenous infections and in cases where other measures are of no avail and the patient is rapidly going down hill.

On account of the tendency to abscess formation and because of their location in the vicinity of the cortex precluding amenability to medical therapy the treatment of coccus infections is usually surgical. Whereas incision and drainage are usually sufficient in perinephritic abscess with little or no renal involvement, nephrectomy is the operation of choice where the latter condition exists. Partial nephrectomy, decapsulation and incision and drainage of kidney abscesses is seldom of permanent benefit although in cases of extensive bilateral abscess formation when the question arises as to the better kidney containing sufficient functioning tissue to preserve life the operation of partial nephrectomy is of value. A patient upon whom I performed a double partial nephrectomy five years ago because of a bilateral calculus pyonephrosis with extensive destruction of renal parenchyma is working twelve hours a day and apparently enjoying perfect health, although the urine from both kidneys contains numerous pus cells.

The treatment of tubercular infection of the kidneys is by nephrectomy except in the presence of more or less extensive bilateral involvement. Here careful tuberculin therapy together with appropriate general measures are occasionally of value.

The following cases present features of special interest:

Mrs. B., a married woman thirty-eight years of age, entered the hospital complaining of deafness, burning during urination and dryness of the mouth. Her illness had begun fourteen days previously with fever, chills particularly at night, nosebleed, diarrhoea and a sharp pain in the right lumbar region extending around to the abdomen and left breast. Seven days later urination became intensely painful and deafness appeared. A provisional diagnosis of typhoid fever was made by the intern and the patient placed in the contagious ward. Examination three days later revealed a large tender movable right kidney and on account of the uncertainty in diagnosis the ureters were catheterized for the purpose of obtaining urine for microscopical examination, culture and the performance of functional tests. The bladder walls, sphincter and ureteral orifices were normal. The intravenous phloridzin and phenolsulphonethalein as well as the quantitative urea tests

showed equal values on both sides. Microscopically the urine from the right kidney showed numerous pus cells and from the left an occasional pus cell. Cultures from both urines showed colon bacilli. Radiographs were negative for calculi. Urotropin and acid sodium phosphate were given internally. Two and again three weeks later the pelvis were lavaged with one half per cent. silver nitrate solution. Two days after the second lavage the general and local symptoms as well as her hearing had greatly improved. She was discharged four days later in apparently normal condition. The question of diagnosis was of interest in this case also the temporary deafness accompanying the infection. The cause of the latter symptom was not determined.

The next case, also one of colon bacillus infection, is illustrative of the chronic type:

Mrs. B., thirty-one years of age, the wife of a physician, complained of frequency of urination, pain in the left lumbar region, nausea and vomiting and cloudy urine. These symptoms recurred every five to ten days and lasted from six to twelve hours. The first attack appeared thirteen years ago and at that time recurred at intervals of three months. Four years ago, shortly after conception, the patient had a severe attack of three months' duration which improved under appropriate treatment. Repeated attempts at catheterization of the left ureter were futile, the catheter meeting an obstruction, due to stricture, one and a half centimeters from the bladder. Chromoureteroscopy with indigo carmine injected intramuscularly showed the characteristic blue discoloration at the right ureteral orifice in six minutes but none appeared on the left side in one half hour. Microscopical and guinea-pig tests for tubercle bacilli were negative. Urine from the right kidney was normal. The bladder urine contained numerous pus cells due to colon bacillus infection.

Following an uneventful confinement three and a half years ago the patient was free from symptoms for several months but they returned with increasing frequency until at the present time the attacks occur at least once a week. She now also complains of occasional slight pains in the right lumbar region. An attempt to catheterize the left ureter with a fine-pointed catheter proving successful, comparative functional tests were instituted with the following results:

Right Kidney		Left Kidney	
Phlorizin (Intravenous Injection)		Phenolsulphonephthalein	
Appearance	5½ minutes	None in one-half hour	
Amount	15%	Faint trace in eleven minutes	
		Very faint trace	
	.003	Urea	
		None	
Right Kidney		Left Kidney	
Microscopical Examination		Examination	
A few small round epithelial cells		Large number of pus cells, single and in clumps	
Negative		Culture	
		Pure colon bacillus	

Pyelography with thorium nitrate showed a large shadow in the left kidney region which was considered due to a pus sack replacing the kidney parenchyma, this diagnosis being apparently substantiated by the negative functional values. Exposure of the kidney, however, revealed an enormously dilated pelvis and upper ureter, but also a large amount of microscopically normal parenchyma. A number five catheter entered the bladder readily from above. In view of these findings an attempt to save the kidney was considered justifiable and a large drainage tube was inserted into the pelvis. Before closure of the wound the kidney was fixed in a position favorable to drainage by sutures through the capsule. The wound having healed the patient left the hospital in three weeks much improved. It is now possible to pass a number six catheter through which drainage and lavage of the pelvis is ac-

complished. The patient is free from subjective symptoms although the urine from the left kidney still contains pus cells and colon bacilli. Functional tests give the following results:

Right Kidney		Left Kidney	
Phlorizin (Intravenous Injection)		Phenolsulphonephthalein	
Appearance	5 minutes	20 minutes	
Amount	1.0	Trace	
Appearance	3½ minutes	25 minutes	
Amount	18%	Trace	
	.002	Urea	
		.001	

The next case is an example of tubercle bacillus infection, interesting from a diagnostic standpoint:

Mrs. G., a well-nourished woman forty-four years of age, complained of frequency of urination and pain in the right lumbar region radiating to the hypogastrium. The symptoms had begun one and a half years ago. Urine from the right kidney contained many pus cells, that from the left was negative. Functional tests showed equal values on both sides. Radiography disclosed two shadows in the right kidney region and pyelography revealed a moderate distention of the right renal pelvis. A diagnosis of nephrolithiasis was made. At operation no stones were found but two circumscribed cavities were present in the lower pole of the kidney. The pathologist reported chronic tuberculosis. Although excusable the mistake in this case could have been avoided if careful examination for tubercle bacilli had been made.

The following case of coccus infection is illustrative of that type in which nephrectomy is indicated:

Mrs. L., married, thirty-one years of age, complained of pain in the right hypochondriac region. The present illness began two years ago at which time she fell down stairs striking on her right side. A slight persistent ache followed this accident. Two months later distinct pain appeared and she began to feel tired. The pain was severe at times compelling her to sit down. A year later she noticed a mass in the right side. For the last few months she has been obliged to urinate two or three times during the night. She has become much weaker recently and has been obliged to remain in bed for several days at a time.

Palpation revealed a tender movable mass the size of the palm of the hand in the right hypochondriac region. Cystoscopy was negative. The urine from the right kidney contained many pus cells and gram positive diplococci. Functional tests showed a marked decrease in value on this side. As no improvement resulted from conservative treatment and the patient was rapidly going down hill nephrectomy was considered advisable. Recovery was uneventful following operation. The pathologist reported diffuse inflammation due to gram positive diplococci.

The above cases illustrate the necessity of a careful examination of the upper urinary tract before the question of treatment is considered. This is possible only after considerable training in urological technique and an amount of time and patience seldom required by other lines of special medical work. Too much emphasis cannot be laid upon the necessity of ascertaining the nature of the organism responsible for the infection.

In New Haven, Bridgeport and other Connecticut towns milk delivered at the station is sold wholesale at 8 cents a quart. It retails as high as 15 cents a quart. In Waterbury, when the price was raised from 12 to 15 cents a quart the sale was so greatly reduced that the price has been dropped back to 14 cents.



## BACKWARD DISPLACEMENT OF THE UTERUS.\*

By THOS. O. BURGER, San Diego.

It may seem presumptuous to attempt to offer something new on retro-displacement of the uterus as so much has previously, and that recently, been said on the subject. Nevertheless I will offer a few ideas regarding the mechanic and orthopedic factors appertaining to treatment. Papers by Stumdorf, Dickerson, Noble, Goffe, and others, have in part furnished material for this paper.

Regarding the uterus as an organ suspended by ligaments, supported indirectly by the pelvic floor, and having its attachment principally at the cervix, leaving the fundus freely movable, we have much opportunity for normal variations as to location.

Should woman walk horizontally, or on all fours, there would be no need for this discussion. However she persists in assuming the upright position for about two-thirds of the twenty-four hours, and thus produces troubles that have closely proximated the social bug in furnishing livelihood for gynecologists.

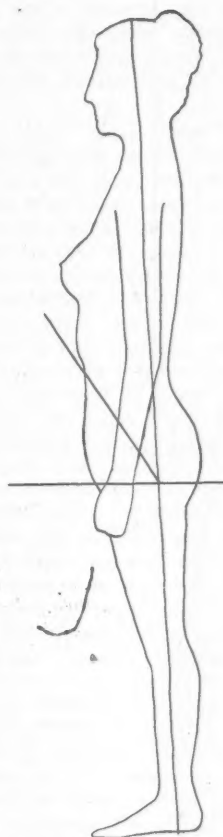
I have prepared charts to explain some of my ideas. You will observe from chart 1 that the angle of deflection of the abdominal cavity and its eddy, the pelvic cavity, is about  $60^\circ$ ; also that a perpendicular or gravity line touching the promontory strikes the back of the symphysis.

Charts 2 and 3 show figures designated "Military" and "Slouch," which show by lines the variations of angulation of the two cavities, also the gravity lines.

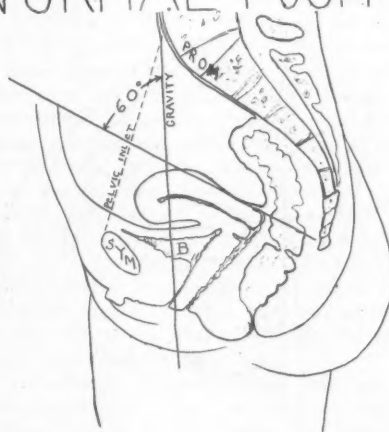
In the "Military," it is seen that the sacrum forms a roof to the pelvic cavity, while in the "Slouch," it is the rear wall. Now this has two distinct effects on the location of the fundus of the uterus. First, in that the utero-sacrals either suspend the cervix in the "Military," or pulls more decidedly backward in the "Slouch." Second, Intra-abdominal pressure is deflected in the "Military" but strikes almost directly into the pelvic in "Slouch." Obviously, if all other things are equal the "Slouch" will have the uterus forced into the inviting hollow of the sacrum by direct intra-abdominal pressure and be pulled back by ligaments. While in the "Military" the uterus will fall forward and what intra-abdominal pressure affects it will be spent on the rear of the fundus to hold it toward the bladder.

The guy ropes (round ligaments) are a decided factor in holding the fundus forward, so that the intra-abdominal pressure falls on the rear of fundus.

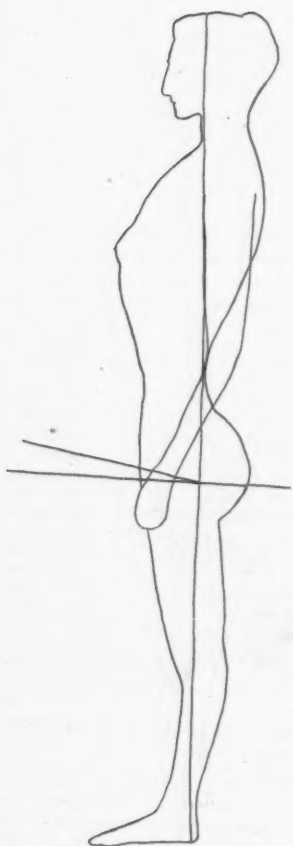
Resultant pathology from mal-position is often the condition for which treatment is sought and the backward displacement per se, may play a minor part in the symptom-complex. This pathol-



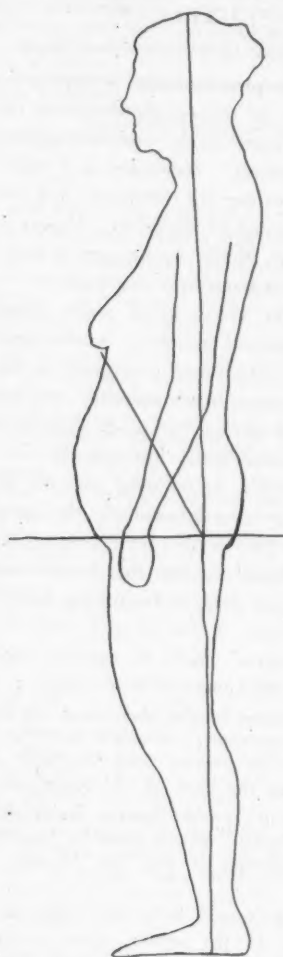
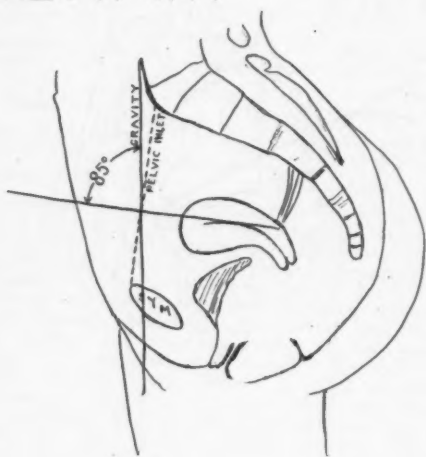
NORMAL POSITION



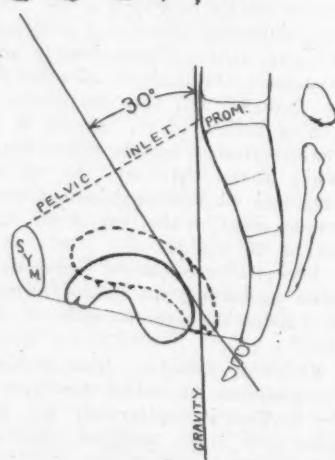
\* Read before the Forty-sixth Annual Meeting of the Medical Society of the State of California, Coronado, April, 1917.



MILITARY



SLOUCH



ogy may therefore become the condition of first importance in the question of treatment, and the retro-displacement the secondary. When a backward displacement exists and symptoms seem to be due to this, especially if neurasthenia is a prominent symptom, the question as to whether surgery is indicated is a master problem. If no other disease can be found in the pelvis, we should make exhaustive study and consider long before we advise surgery, for the end results may be disappointing. If radical treatment is deemed necessary, I do not know of any operation in the whole domain of surgery where surgical judgment is of greater importance in wisely selecting the particular operation best suited to the individual case.

There was a time when the variety of pickles and of operations for retro-displacements were about numerically equal, but Mr. Heinz has been out-distanced in the race, as we have more than 100 variations of the operation for retro-displacement, and to be able to select the proper procedure is often of more value to the patient than to be able to perfectly execute a technique that is not applicable to the condition found. For example: If the cervix is held far to the front by a pronounced Goff ligament or congenitally located near pubes, and a Baldy-Webster only is done, we'd make bad matters worse by producing an anti-flexion, at the same time crowding the whole uterus over on the bladder. In such a case vaginal work may be necessary to let the cervix backward by cutting the ligament of Goff, and probably the utero-sacrals shortened to hold cervix back and then the fundus falls forward and is kept so by intra-abdominal pressure; or it may be necessary to do some round ligament shortening to tilt the fundus to the front. Another illustration: When the cervix is held well back and no pathology exists in the adnexa and simply bringing the fundus forward is the only need, I think the Baldy-Webster the most ideal procedure. There are other cases where Olshausen may be the ideal and therefore the best operation. Many things, however, should be considered and each case must be individualized from many standpoints to get a satisfactory result. Pages could be written in the discussion of factors governing the proper selection or variation of operations. However, we are impressed that surgery and surgery alone is not always the proper manner of dealing with this class of troubles.

The pessary which is becoming obsolete in Gynecology may have a place in this condition, especially in this orthopedic or improper skeletal poise. A Smith Hodge or some similar make may be properly fitted out and be found useful. I consider the pessary of value in that it fills the space in the hollow of sacrum that holds the fundus; it also pushes up the utero-sacrals, taking up their slack and in that way pulls the cervix back, making it easier for the fundus to tilt forward, thus allowing the intestines and intra-abdominal pressure to hold it forward. If the pessary is used temporarily during gymnastic exercises, along with a properly adjusted corset, and if it be subject to constant supervision, every effort being made to obtain a

correct skeletal poise, we may get much benefit from its use and later dispense with it altogether. The principal object in all these cases should therefore be to secure a normal anatomic position within the pelvis; proper poise of the lower abdomen and pelvic planes, and to decrease the lower abdominal space and increase the upper abdominal area. In this way we are preventing general ptoses, of which backward uterine displacement is often only one of many.

Our main object in all these cases should be to secure and maintain normal anatomic relations of the pelvis and abdominal and pelvic contents.

The women who have congenital poor poise and bad placement of organs, also the women who from lack of attention to their position have failed to develop a proper normal anatomical corset, i. e., a good firm anterior wall, are the ones that have this condition. We must *reform* them and must see that they develop enough muscle tone and correct skeletal poise to prevent the ptosis and backache and neurasthenia that most of these women come to us for. It requires a master effort not to operate and then let the other doctor have the patient back to do with as he may. It may be necessary to put these women to bed and in the Trendelenberg position at first to get the abdominal contents into upper abdomen and while in bed assist the development of good abdominal wall tone by proper exercises, also put on some fat which will help to deflect intra-abdominal pressure and form a shelf to support the kidneys and other abdominal contents. The knee-chest, or easier, swinging the body from the thighs in prone position, relaxing and expanding the upper abdomen and then contracting the lower abdominal wall to develop better tone and also push up the contents. After the period of rest and treatment in bed, when it is necessary, the patient should be properly and comfortably fitted with some mechanical supports, such as braces, binders or scientifically adjusted corsets; she should be under constant supervision for a long period of time, faithfully instructed as to exercises and proper posture, emphasizing the importance of not stooping or slouching, thus preventing attitudinal strain.

The mere fact that more than 100 operations have been used for retro-displacement, brands operative treatment alone as not being successful, just as in drug therapeutics where we have a dozen remedies for one condition where drugs are not needed, as the old time dispenser believed.

But I do want to impress that gynecology does not have its limitations in what is accessible through the vagina or a four inch incision. We must and do consider what is in the pelvis, the pelvis itself, the abdominal organs, skeleton, internal secretions and, in fact, the entire woman with all the peculiarities her sex certainly produces.

The orthopedist, gastro-intestinal specialist and the gynecologist will often do well to combine their efforts on these women whose lives are miserable from the ligamentous strain, abdominal organ ptosis and the knowledge that they have "falling of the womb." Can we refrain from doing an easy, apparently harmless operation to satisfy their minds only?



## PRE-OPERATIVE INVESTIGATION BY GROUP STUDY SUGGESTED AS A METHOD FOR THE LOWERING OF SURGICAL FATALITIES.\*

By FAYETTE WATT BIRTCH, M. D.,  
San Francisco, Cal.

In this discussion of surgical fatalities, emergency operations will be omitted and the consideration will be confined to the deaths following operations for chronic pathologic conditions. An attempt will be made to show the responsibility the surgeon must assume in these deaths; to call attention to the defects in American surgery; and to point out how some of our present day fatalities may be avoided.

The study of surgical risks by calculating only the percentage of deaths is often misleading. Surgeons in this method of study are the diagnosticians, operators and statisticians. They are, in fact, the judge and the jury. This is incompatible with unbiased judgment. If the records of the fatal cases were compiled by a disinterested party, and the causes of death determined in each, a reliable classification of the surgeons' errors might then be made. At present, however, few such lists are available. One would expect to find such a list in the Mortality Statistics of the Census Bureau, but such is not the case. The Clinical Congress of Surgeons of North America in 1914 took a step in this direction when it appointed a committee to standardize hospitals, with Dr. E. A. Codman as chairman. Few hospitals have made an effort to fulfill the requirements of that committee. Three Boston hospitals should receive favorable comment in this regard, the Peter Bent Brigham, the Codman and the Massachusetts General. These hospitals publish a résumé of the surgical fatalities and the causes of death in the annual reports. Any of these reports might be valuable in this discussion but, since the Massachusetts General Hospital is a general hospital and one of the oldest in America, standing high in the esteem of the profession, and having capable, honest men who are constantly struggling for better medicine, its report has been chosen to demonstrate the surgeon's responsibility in these deaths. In 1914-15, this hospital reported three hundred and twenty-five operative fatalities. This paper sets aside one hundred and sixty emergency cases in this group, such as acute abdomens, fractured skulls, etc., and uses only cases which had chronic pathological conditions in which the surgeons had time for pre-operative study. These chronic cases amount to one hundred and sixty-five.

The causes of death of the one hundred and sixty-five may be segregated into a modification of the Codman Committee classification, as follows:

Unconquerable Diseases .....	165
Surgical Calamities .....	26
Lack of Technical Knowledge or Skill .....	50
Lack of Pre-operative Diagnostic Skill to Ascertain the Reserve Power of Other Organs or to Ascertain the Extent of Primary Dis-	

ease, or the Number and Influence of Concomitant Diseases ..... 55  
Lastly, Unclassified, as data was not sufficient 21

The dissection of these groups discloses that in the unconquerable diseases, but 13, or 8%, died from the diseases for which they were operated upon. An example of this is a carcinoma of the vagina and urethra, operated upon; patient failed and died of the disease on the fortieth day.

In the "Surgical Calamity" Group, the twenty-six cases, or 16%, were divided among: Pneumonia, 14; emboli, 11; cerebral hemorrhage, 1. Today these cases are not charged against the surgeon. In the future, some of the conditions may be prevented or forecast. Pneumonia may depend upon pre-operative or post-operative treatment and some surgeons even now claim that a surgeon's technic is responsible for the production of emboli.

In the group classified: "Caused by Lack of Technical Knowledge or Skill," there were fifty cases, or 30%, and, under this division, infection occurred thirty-nine times. This was of the nature of erysipelas of the wound, peritonitis following the soiling of the peritoneum in gall-bladder, stomach and intestinal operations. Hemorrhage occurred eleven times. Possibly, with more care in the investigation of the coagulation of the blood and with more careful control of the bleeding at the time of operation, many of these could have been prevented.

Under "Death Due to the Lack of Proper Pre-operative Diagnosis," fifty-five cases, or 33%, were found. Concomitant diseases were responsible for the death twenty-six times. These were classified as due to purulent pericarditis, decompensated heart, uremia, dysfunction of the pancreas, liver, shock, etc. Twenty-nine cases in this group were put down as shock when there was no evidence of bleeding. These, if Crile's explanation of shock be taken, should be placed under the classification of "Surgeon's Lack of Skill"; but, if shock depends upon cardiovascular failure or dysfunction of the endocrine glands, or upon the disturbance of the sympathetic system, they fall under the head of "Inability to Recognize the Degree of Response of These Organs." However, under whichever division they are placed, the surgeon is clearly responsible.

In twenty-one cases, or 13%, the data described were not sufficient to ascertain the causes of death and really should be omitted in this discussion.

These statistics show that the mistakes due to the operator's lack of pre-operative diagnostic ability to gauge the patient's reserve force were responsible for the largest number of deaths; and that surgeons' slips in technic stand out boldly as the second great cause, while only thirteen cases, or 8%, died of the original disease. Giving the surgeon credit for doing no particular harm except that of making the patient uncomfortable in the cases in which the patient died of the uncontrollable disease, and attaching no blame to him for those cases of surgical calamity, and saying nothing about the 13% which died where the evidence was not sufficient to ascertain the causes of death, there still

\* Read at Annual Convention, State Medical Association, April, 1917.

remains 63% where the surgeon must definitely assume the responsibility.

This report appears to be very disheartening and is the more so when it is remembered that the surgeons in the Massachusetts General Hospital are doing work which is quite as good as is being done in any of the American hospitals, and that this hospital is struggling to overcome its defects by publishing the bad results. Remembering this, an idea as to the nature of the work that is being done in other hospitals where no check is kept may be imagined.

The question naturally arises: Could any of these Massachusetts General Hospital deaths have been prevented? In a lay magazine of recent date, a large department store described its attempt to study the causes and the method for the prevention of mistakes in its employees, such as mistaken addresses, etc. This firm found 15,000 mistakes a month. By listing in public places throughout the institution the names of the individuals and the mistakes made, in a short time, the number of blunders was reduced to 1500. This is exactly what Massachusetts General Hospital is doing to its surgeons, and undoubtedly it will be as effective in medicine as in business. The discouraging part of it is the appreciation of the number of hospitals that are not checking their surgeons.

In the group where the deaths were due to bad pre-operative diagnoses, it is of interest to note that, in 1916, in ten of the twenty-four deaths in this group, the patients were in the hospital forty-eight hours or less. This, from our experience, is far too short a time to observe these grave surgical risks. Only seven out of fifty-five cases, or 13%, were transferred from the medical division, and it is assumed, then, that the 87% were admitted to the surgical wards and operated upon without having the opinion of the medical division. It is only fair to the medical staff to say that, if it had been consulted, a fair proportion of the 87% could have been corrected. It is doubtful if surgeons will ever get the best results until they routinely consult the medical division, take more time to study the chronic cases, and check their own results more critically.

At St. Luke's Hospital in San Francisco, more than three years ago, it was recognized that many operative mistakes were being made unnecessarily and, in an effort to overcome this, the surgeons of our organization consulted the medical members routinely before operations. But, even after following this plan, the post mortems and the clinical course of the patients too often proved that the results were still unsatisfactory. This necessitated further improvements which were accomplished by organizing our internists, laboratory workers and surgeons into a group to study routinely, consult upon, and make a report of the cases before operating. While the deaths following chronic pathological lesions in this group are too few to be of any value in this study (two cases died of pneumonia on the ninth and eleventh days respectively), yet a presentation of the clinical material and the disposal of the surgical cases

from the standpoint of group study may be of interest.

In St. Luke's group of 332 patients, there were 131 with major surgical pathological lesions. In 131, there were found 709 concomitant diseases, approximately, 5.4 per patient. The length of time necessary to examine these patients averaged 4.2 days, in contrast to the Massachusetts cases of less than two days. In 131 cases, the group of clinicians made the following disposition: No operation, 42 times; immediate operations, 32; surgical treatment if medical fails, 22 times; surgical, after medically improved, 30 times; therapeutic tests, five times. In approximately three out of the four, or 75%, it was found advisable not to operate at the time examined, and in 42, or approximately 30% of the cases, never to operate. It is probably true that at least 50% of the patients now operated upon for chronic conditions should be submitted to some other type of therapy. Whether this will be proven or not, investigating the patients by the method of group study places in the hands of the surgeon most valuable material as to the morbid process existing in distant parts of the patient's anatomy, making it possible for the surgeon to take whatever steps he deems advisable in regard to the control of the concomitant diseases. It is our contention that group study will in the future be widely practiced for preoperative investigation of patients, this method being constructed on the old adage, "Two heads are better than one."

More will be found of value in the actual study of the causes of surgical fatalities by placing the responsibility where it belongs than has ever been accomplished by surgeons excusing themselves by the statements, "I gave him a chance," "He would have died anyway." Surgeons must remember that the patients come to them alive and it is their duty to send them away alive.

The Massachusetts report would seem to indicate that the medical division is not consulted frequently enough in the calculation of surgical risks. If such unbiased reports as the Massachusetts General's could be published from every hospital in America, surgeons would soon lose their ego, soon realize their responsibility and quickly take steps to overcome their faults; but hospitals will not do this until they are forced to it.

If the American Medical Association or the American College of Surgeons or any other group of organized medical men would require of its members a description of the clinical course of every operative fatality and then would point out how the case might have been better conducted, much would be accomplished in an educational way for surgery. Such a course would abrogate the necessity of the laity passing laws to protect their rights, which some of the States are now attempting to do. The Diagnostic Section of St. Luke's Hospital, in its pre-operative work, by its routine group method of study is making an attempt to solve the problem of the too hasty and incomplete pre-operative investigation that is all too frequently charged against the profession.

Dr. Sherman has said with some truth that Dr.

Birtch deals with a psychological as much as a surgical problem, and with limitations and differentiations, I am inclined to agree with him, although perhaps on quite a different ground to that which he has advanced. He has told us that what is needed to change failure into success, and eliminate the percentage of deaths from faulty diagnoses, is a cultivation in the surgeon of the faculty of patience and careful examination. Without in any way disparaging the acquirement of these very necessary qualities in both surgeon and physician, I cannot help thinking that the trouble lies deeper. In the old days and in Europe, even until quite recently and still in many places, it has been the custom for the diagnosis to be made by one who is not engaged in surgical operative work; who can concentrate, therefore, the whole of his time and faculties upon the problems which the recognition of disease involve, leaving the surgeon to do likewise in the acquirement of the manual dexterity upon which his success is dependent. And this is not merely a question of arbitrary selection, it is based upon the fact that the psychological attributes needed for carrying out operative procedures are entirely different from those needed for the recognition of obscure conditions depending on many factors. The first requires the objective type of mind, the second the subjective, and any psychologist will tell you that human faculties are more commonly sharply divided into these types than combined into blends. The objective type of mind, in which stimuli result in immediate and rapid action, will lead the medical practitioner who is its possessor naturally to surgery, in which these attributes are absolutely necessary to success. Equally, the subjective type of mind, with its difficulty in taking immediate action because of its natural tendency to prior reflection, will surely engage in the intellectual task of diagnosis, wherein it finds its proper field. In other words, I think there is good ground to show that as a matter of scientific psychological knowledge, the attempt to combine the qualities of surgeon and physician in one man is almost doomed to failure, and that the hope of the highest success is in going back to the old method of letting the internist diagnose and the surgeon operate.

### CARDIOSPASM.

By THOS. J. ORBISON, M.D., Los Angeles.

This is the name given to a neurosis the dominant symptom of which is oesophageal spasmodic closure at or near the cardiac end of the stomach during the act of deglutition.

It should be noted that the spasm is not the disease, but a symptom of the underlying nervous imbalance that is responsible for the disturbed nervous tone. In health, the balance between the anatomical parts of the nervous mechanism is maintained automatically, and there is a condition of almost unconscious regulation of the mechanism of deglutition which we regard as normal tone. While this normal tone is maintained, the food is masticated, lubricated by saliva and passed over the posterior portion of the tongue, in which reside the taste buds, and comes in contact with the pharyngeal walls where it sends stimuli through the "chief spots" and "accessory spots" in an afferent direction. The efferent response causes muscular contractions which send the food in more or less of a squirt into the upper portion of the oesophagus.

A fluoroscopic view of the oesophagus shows the stream of the bismuth meal, after it has taken

on this spurt, go trickling in a continuous stream through the oesophagus, through the cardiac ring and on into the stomach where various waves are set up by the reaction of the nervous mechanism and muscles of the stomach to the stimuli set in play by the ingested material.

In the patient suffering with the neurosis of which cardiospasm is a symptom, instead of the unconscious action and interplay of the "autonomic," "sympathetic" and intrinsic nerve supplies of the lower oesophagus and cardiac ring, there is a disharmony due, for example, to heightened irritability of one or the other of these systems, with consequent disturbance of balance and loss of integrity.

The result may be a spasmodic closure near the cardiac end of the stomach lasting a longer or shorter time and the consequent holding of the ingested material in the lower oesophagus. Upon this accumulated mass the ill balanced play of muscular action spends itself, and the result is pain back of the sternum, gagging, intense mediastinal distress and regurgitation of food that is, of course, undigested.

Inasmuch as vagus irritability is responsible for a goodly number of cases of cardiospasm, there are those who class the patients as of the "vago-toni-acs." While it is true that cardiospasm may be one of the symptoms of vagotonia, nevertheless the diagnostician should not force this diagnosis. In the next few years, it will be more and more common to see various of the hitherto unlabeled neuroses recorded as either "vago-tonias" or "sympatheticotonias." While this will undoubtedly be correct in very many instances, yet it will not be in the line with wise conservatism to do so without due analysis and correlation of the symptoms and etiological factors.

The latter have been grouped (Held & Gross, J. A. M. A., Jan. 22, 1916) under five heads:

1. Patients whose vegetative nervous system is below par through inheritance.
2. Cases in which the vegetative nervous system becomes involved because of an inborn status asthenicus.
3. The cases in which the cardiospasm is reflex to irritation from other diseased organs (carcinoma of the fundus and lesser curvature of the stomach, gall stones, renal calculus, chronic pancreatitis, etc.).
4. Cardiospasm due to toxic and metabolic agents (lead, uremia, gout, etc.).
5. Cases due to local disease of the oesophagus (fissure, lesions, ulcer, etc.).

The chief conditions to be differentiated from cardiospasm are spasm of the oesophagus, stricture of the oesophagus and diverticulum of the oesophagus. The diagnosis is made clear by appropriate sounding and by the x-ray picture.

**Symptoms:** Inasmuch as true, uncomplicated cardiospasm is a functional disturbance that is set up when the attempt is made to ingest food, with the result that the ingested food is denied ingress into the stomach, it follows that the symptoms must be general and localized distress due to



the spasm; regurgitation and churning of undigested food; at times, hicough; at times, pain back of the lower sternum, together with accompanying local and neighborhood symptoms.

Oftentimes, the patient is able to swallow solids more easily than liquids. Many complain bitterly of hunger and of the fact that just when they have begun to eat, or take the first spoonful of liquids, they are destined to leave the table, or are forced to await the cessation of the spasm.

The food sometimes remains in the lower oesophagus until it begins to ferment; and then, when ejected, it will possess a sour taste and evil smell. There is, of course, a great deal of mental distress with bodily emaciation.

**Treatment:** Fortunately, in cases of uncomplicated cardiospasm the results of correct treatment are dramatically happy. The patient is given a spool of silk thread six yards long and told to swallow slowly three yards of it in the evening and the next three yards next morning. Thus the distal end should have become anchored in the small intestine and the proximal end remain on the spool which should be pinned securely to the night dress.

When sufficient thread has been swallowed and one is sure, by exerting traction, that it is anchored and not simply lying in the oesophagus or stomach, the proximal end is threaded on to the metal bulb which is fastened to the flexible end of the instrument made for this purpose which is composed of a dilatable rubber bag fastened distally to a rubber tube—these are of various makes.

The thread acts as a guide or trolley by which the instrument is guided into the locus of spasm and prevented from going astray, and thereby damaging the walls of the oesophagus. The patient is directed to swallow the instrument as he would a stomach tube. When the rubber bag has become engaged in the ring, it is dilated by a graduated water pressure gauge and the dilatation maintained for several seconds, or minutes, as the case may be.

The result of one treatment has often been a cure. It is, however, deemed wiser to repeat the operation two, three or even four times at weekly intervals.

The case to be described is remarkable for several reasons: the age of the patient, the complications which had from time to time arisen, viz., diabetes, cardio-vascular-renal disease, high blood pressure with vicious pulse pressure, cardiac arrhythmia, intestinal stasis, emaciation, and, to cap it all, an intra-cranial hemorrhage. This was followed in a short time by a trans-continental journey which was obstinately carried out against the advice of his home physicians who feared that malignant disease of the lower oesophagus or stomach was the cause of the cardiospasm.

Case 1. J. J., aet., 67 years, married, consulted me on December 28, 1915.

**Family History:** Both parents were healthy through most of their lives. One sister died with asthma. The families were considered long-lived.

Two daughters are alive and healthy. One child died at 14 years with diphtheria and one died in infancy.

**Previous History:** As a youth and young man this patient was very healthy, but for the last twenty years he had suffered with a succession of complications beginning with diabetes. This was checked in time and for some years has not given him much concern. Five years ago, he developed a cystitis that became very persistent. His aversion to taking even ordinarily good care of himself from a medical standpoint has resulted in his failure to take and put into practice even superficial medical attention and advice. Thus his condition of health has become undermined. It is certain that he has suffered with cardio-vascular-renal disease for years. He had evidently paid little or no attention to the symptoms as they arose and was criminally negligent of his own condition.

**Present Trouble:** About one year ago, he first complained of symptoms of cardiospasm; i. e., when drinking iced drinks, he began to have to wait for a time for the liquid to get into the stomach. Soon there developed hicough and explosive efforts. In a short time, the syndrome of cardiospasm fully developed itself. Liquids would foam up into the mouth. Vomiting ensued. As time went on, there would not be a meal that could be taken in comfort. He lost weight and became very much depressed and uneasy. Just a month before consulting me, he sustained a cerebral hemorrhage. As he was attempting to go to the toilet he fell. When he was picked up and put to bed, it was evident that he was mentally clouded. The left side of his face showed the signs of a central facial palsy. Saliva drooled from the left side of his mouth, the left arm was very paretic—almost paralyzed—and the left leg similarly affected, but to a less extent. He does not remember much that transpired during the next ten days to two weeks. During that period he often vomited.

**Physical Examination:** He was seen by me just subsequent to the four days' trip across the continent from Boston. The facial paresis was still quite evident and the drooling persisted. The arm and leg were much stronger than they had been and he could shuffle about with but little assistance.

The peripheral arterioles over the face were very noticeable and in many places over his body were subcutaneous petechial hemorrhages. Emaciation was quite marked. The abdomen was pendulous and protuberant.

The pupils were equal and reacted normally to light and in accommodation. The distal phalanges of the fingers were decidedly clubbed and cyanotic.

Auscultation over the heart region elicited coarse murmurs over the mitral and aortic zones, systolic in time. Arrhythmia was excessive, and cardiac action tumultuous. The blood pressure apparatus registered 200 systolic and 100 diastolic. Rales were heard over the base of both lungs.

A series of examinations of the urine showed conclusively the presence of a chronic renal disease with a chronic cystitis.

Dr. P. G. White was called as a consultant

and to assist in the management of the case. He "screened" the patient after a bismuth meal and secured a picture of the conditions immediately following. It very prettily showed the gourd-shaped oesophagus, with the constriction of the cardiac ring holding back the bismuth meal. Nothing else that was pathological was observed, except that there seemed to be a bulging or dilatation of the aorta just distal to the heart.

Six days later, we effected the first dilatation, following out the method outlined above in its various steps. Fifteen minutes after the dilatation, the patient swallowed a glassful of water without any symptom of spasm or distress. It was the first comfortable experience of the kind he had had in months. His next meal was enjoyed, as well as subsequent meals.

It was deemed best to do nothing else of a radical nature and for the next two weeks he was given suitable nourishment, with rest and massage. Under this regime, he improved markedly in strength and general mental and nervous tone.

The condition of the kidneys was not grave and the relief from the strain of the daily vomiting upon his arterial system made the situation much safer for the patient.

Dr. E. Avery Newton was called in consultation for the purpose of taking an electro-cardiographic picture, as we desired to obtain more data relating to the circulation, with the idea of applying a series of Nauheim baths. A second dilatation was made and the patient was put upon a suitable diet and the baths begun. A third dilatation was tried, but failed. He continued to maintain his improved condition as to the spasm, but soon passed out of my care into other hands. Since then, after some indiscretion, I was told, he sustained another cerebral hemorrhage.

Following the relief of the cardiospasm the improvement of the general tone and physical strength was immediate and quite remarkable. With this, there was less mental depression and a very much more livable existence for the patient—for he was indeed in a very precarious condition before the cardiospasm was corrected. The correction paved the way for his future betterment and made it possible.

#### SELECTED APHORISMS FROM ISAAC JUDAEUS, 830-932 A. D.

The physician who promises to cure disease with certainty takes a serious responsibility upon himself.

Never rely in treatment upon wonderworking cures, for these depend upon ignorance and superstition.

Seal thy mouth to prophetic and self-evident expressions. What thou sayest should generally be stated as conditional.

Suffer not thy mouth to condemn when something happens to a physician, for everyone has his evil day. Let thy deeds praise thee, and seek not thine honor in another's shame.

Make it thy special concern to visit and treat poor and needy patients, for in no way can thou find more meritorious service.

#### A NEW DEVICE FOR HOLDING FRACTURES OF THE LONG BONES.

J. A. SIMPSON, M. D., San Francisco.

The present treatment of fractures of the long bones has not given uniformly good results. While the introduction of the Lane plate has marked a distinct advance in the treatment of these cases, the results have often been disappointing.

The reason for this is not difficult to see; the screws used taper from head to point and cut their own thread in the bone. Living bone, under pressure, may absorb, leaving the screw loose. The plate separates from the bone and muscle pull brings about shortening and deformity. The loose plate and screws become irritating foreign bodies and have to be removed. The last end of that patient is worse than the first.

Believing that the principle of the internal splint is sound, but that its application has been faulty, I have constructed a device free from the objections above mentioned. It consists of two parts,—a screw and a cannula, and is called a bushing-screw, as the device is both a screw and a bushing. The length of the screw corresponds accurately with the depth of the bore in the bone (the diameter of the bone) and is threaded only for a short distance at the head end, as shown in the plate (Fig. 7).

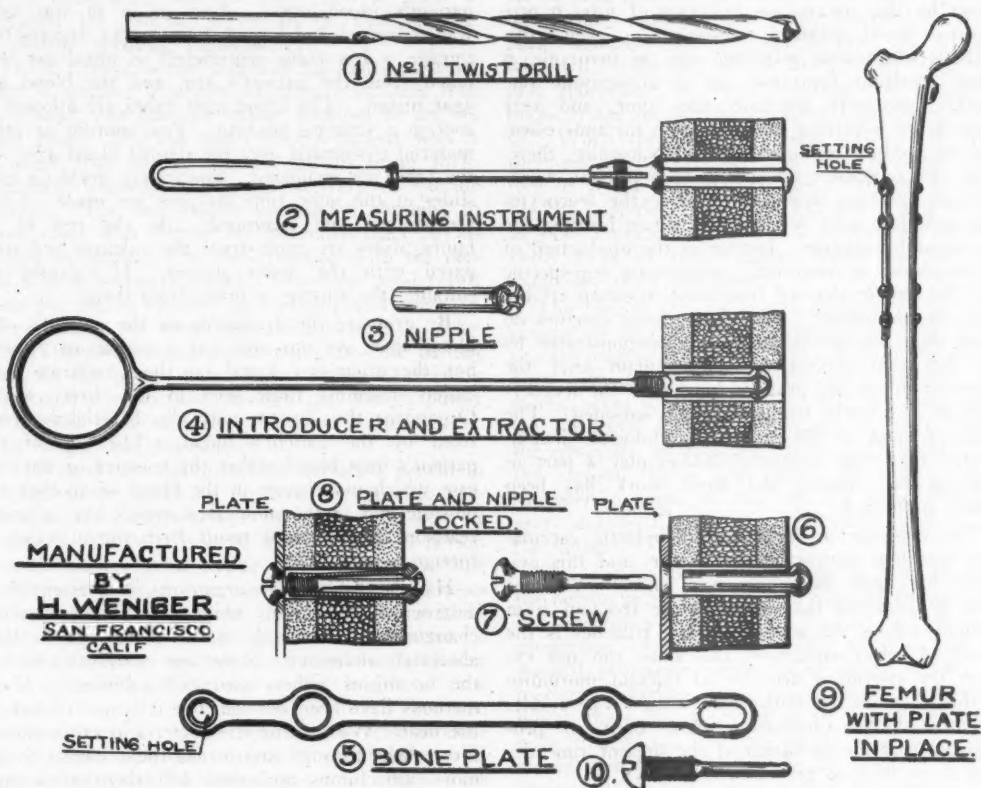
The cannula, marked nipple (Fig. 3), has a double taper head on the distal end, to facilitate introduction and extraction. Four longitudinal, parallel sections are cut out for two-thirds of its length, beginning at the distal end, which enables it to pass through the drill hole prepared for it. At its proximal end it is threaded on the inner surface for about one-third of its length to correspond with the threads on the screw. The cannula is made the exact size of a standard drill, for the femur, No. 11 twisted drill (Fig. 1). The portion of the cannula from which the sections have been removed is tempered and slightly spread, in order, by friction, to facilitate the insertion of the screw.

An inserter and extractor (Fig. 4) is used as its name suggests.

A caliper (Fig. 2) is used for measuring the length of the drill hole.

In oblique fractures no plate is needed; all that is necessary is to expose the fracture by incision, reduce it and with the bone held firmly drill two holes, properly located, pass the screws through and tighten them.

In transverse fractures a plate is needed and one that differs somewhat from those in general use, in that fewer holes are needed, but of somewhat larger size (Fig. 5). The first screw is inserted at point marked setting hole. In the other end is a slot instead of a hole; here the second screw is inserted by making the bore at the center of the slot. This arrangement enables the operator to readjust the fragments, if necessary, without removing the plate; a flat head screw



(Fig. 10) is used here. With the end screws tightened the other holes are drilled and screws inserted and tightened. Fig. 9 shows bone plated.

The advantages of this device are that when applied, it has the effect of a screw with a head on both ends. It gives a firm grip on the plate, if one is used, and on the compact tissue on the opposite side of the bone.

Furthermore, nothing is left to chance or guess-work and the operator works with all the precision of a machinist. The standardization of tools alone is of no small advantage.

The parts of the bushing-screw can be made to correspond in size with that of any of the long bones; so far we have confined our work to the femur alone.

The message of the European war and the suffering of our countrymen have taught us this, and it is a lesson which I believe we shall all incorporate in our school tradition: that by the small incident and by attention to small details, by accurate work, by the passion and love for minutiae, we shall enlarge the horizon of those we have to teach, so that old quarrels between nations that should be friendly vanish as they are seen in their true proportion, and a new people will be built up that will lay a firm hold upon true principles of government and thereby secure the healthy progress of mankind.—From the address of Prof. Geoffrey Butler, Dean of Corpus Christi College, Cambridge University, at the 53d University Convocation.—“Volta Review.”

## VACCINE THERAPY.

By T. H. GLENN, M. D., Los Angeles.

The use of vaccines as a prophylactic, as well as a curative measure, has undoubtedly been over-rated by some workers, and under-valued by others. Frankel, Miller and others have shown that many of the reactions, which were earlier thought to be produced by autogenous vaccines only, can be produced by non-specific proteins. Others have shown that good results, especially in arthritic cases, may be brought about by the intravenous injection of colloidal preparations, of which colloidal sulphur, produced by the French, is a good example. Even as early as 1893, De-Bacher of Paris recommended the use of the yeast ferment in the treatment of microbic diseases. Victor Vaughn, in 1894, advocated the use of nuclein and nucleic acid in the treatment of disease, claiming that the natural resistance to disease is strengthened by a physiological increase of the white corpuscles which is induced by the introduction of nucleins and similar substances. Hawk and his co-workers have recently revived yeast therapy and report some interesting results.

Most of the workers, such as Miller and Frankel, have limited their investigations to typhoid fever or acute arthritis, usually self-limited diseases. In many of their cases, they were able to limit the course of the disease by the injection of foreign proteins. It should excite no surprise that good results in acute infections may be brought



about by the intravenous injection of foreign proteins or even colloidal substances or even salts, such as magnesium sulphate, even as favorable as those resulting from the use of autogenous vaccines. Immunity reactions take time, and very often acute infections subside within the time essential to produce immune bodies. Naturally, therefore, any substance, whether it be a protein, a colloid or nucleins, that will increase the leucocytes and stimulate their activity will aid in limiting the course of the disease. Insofar as the production of a leucocytosis is concerned, vaccines are non-specific and the benefits derived from their injection are the same in all diseases. That autogenous vaccines do more than non-specific proteins is demonstrated by the fact that protective bodies remain after the injection of specific proteins long after the leucocytosis or increase of temperature has subsided. The work of many of the earlier bacteriologists demonstrated that these protective bodies play a part in limiting the disease and their work has been amply confirmed.

The evidence in favor of prophylactic vaccination was first furnished by Pasteur, and this evidence has been increasing ever since. While it must be admitted that much of the freedom from typhoid among the soldiers in the trenches is the result of better sanitation, this alone can not explain the enormous decrease of typhoid morbidity in this as compared with other wars. The results of prophylactic vaccination have been so pronounced that no sanitarian of the present time desires to go back to pre-vaccination days.

Vaccines as curative agents, however, have not become so powerfully entrenched. Vaccine therapy has failed in a goodly number of cases. These failures are in many cases due to the fact that the vaccine has not been given at the proper time, to the proper subject and in the proper amount. Too often, vaccines are used as a last resort after all other forms of medication have failed. This obviously is the worst time they could be used and they certainly get the crucial test.

If specific results are desired, the causal organism or organisms should be isolated, identified and their relationship to the disease established if possible. The vaccine should be made from these organisms. In many cases the isolation of the causal organism is very difficult. Especially is this so in mixed infections where it is not always easy, sometimes impossible, to tell which is the causal organism and which the contamination even with the aid of the agglutination reaction. If, however, an autogenous vaccine be used, that is, if the vaccine be made from a culture made from the lesion, especially if the proper media is utilized in obtaining the growth, the causal organism is more likely to be present in a vaccine so made than in any stock vaccine, no matter how carefully selected. The selection of a stock vaccine is exceedingly difficult unless a bacteriological diagnosis has been made. As a matter of fact no vaccine should be used until a bacteriological diagnosis has been made and the best vaccine is always the one made from organisms isolated from the lesion.

It is our custom to grow all organisms on the

patient's blood agar. Agar made in the usual way is melted and cooled down to 43 degrees centigrade, a few cubic centimeters of blood are then taken from the patient's arm and the blood and agar mixed. The blood agar tubes are allowed to cool in a slanting position. Pus, sputum or other material is smeared over the slanted blood agar and the tubes are incubated. Smears are made on glass slides at the same time cultures are made. These are stained and examined. At the end of 24 hours, slides are made from the cultures and compared with the direct smears. If cultures are suitable, the vaccine is made from them.

By growing the organisms on the patient's own blood agar, we not only get a maximum growth, but the organisms found on these cultures more closely resemble those seen in the direct smear. Organisms thus grown may also be slightly sensitized by the patient's blood. The use of the patient's own blood makes the transfer of any disease which may linger in the blood of another impossible and at the same time avoids any injurious reactions which might result from the injection of foreign sera.

Having isolated the organism, it is essential to destroy it or rather render it lifeless without changing its chemical character any more than absolutely necessary. Some use chloroform to kill the organisms, others saturated solutions. Many methods have been devised, but it is our custom to use heat. We suspend the bacteria in salt solution, filter them through sterile absorbent cotton to remove all clumps and then kill them at a temperature just high enough to kill the bacteria, but not high enough to coagulate the albumin left over from the patient's blood.

Having overcome the errors of production, it is always wise to determine whether or not the patient is a fit subject for vaccine therapy.

Vaccines merely stimulate the normal powers of resistance. They do not create new powers. If these powers are lost, if the body is completely run down, one should not expect to get good results from vaccination.

Early in the manufacture of diphtheria antitoxin, the producers learned that nervous horses did not produce as much antitoxin as a result of the same stimulus as did less nervous ones. The same thing must be taken into consideration in vaccine therapy. The best results can not be expected in the high strung nervous individuals. If one is to get the best results in these cases, he must alter their nervous condition; for, while they are subject to so many nervous explosions, any stimulation of the antibody producing cells is certainly at a minimum. Neither can one expect good results if the tissue changes have been great. Vaccines have no effect upon the tissues. They increase the body's power to destroy invading organisms, but they do not in any way aid the destroyed tissue to return to normal. If the tissues are destroyed or replaced by tissues of a lower grade, vaccines will have effect only so far as they tend to check the progress of the infection.

Vaccines are not substitutes for surgery. Wounds must be drained and the pressure removed from

the tissues so that a goodly supply of blood may get to the injured cells. When physiological drainage is established, vaccines may then be used to stimulate the normal forces to do their utmost to destroy invading organisms.

If the patient is run down, if his gastrointestinal tract is sending a stream of toxic substances into his system, one can not expect vaccines to do the most good. Nor can one expect a patient who is so weak that normal stimuli fail to bring forth the least response to respond actively to vaccine therapy. The best results are always obtained in those cases who themselves normally react to invading parasites. The ideal reaction is in the person who is perfectly normal; hence the good result from the use of vaccines as a prophylactic measure. The reaction in acute and chronic cases is practically the same except in chronic cases the patient has still the power to a limited extent of keeping the bacteria in abeyance though not enough power to destroy them entirely. Vaccines stimulate the cells to increase this power.

The same stimulation which enables a person to become prophylactically protected by specific vaccines is at work whether the person is well or diseased. While it may be true that the ill person has not such a great power of response to vaccine therapy, it certainly can not be true that he loses this power the moment he is attacked by invading micro organisms. If prophylactic vaccination is specific, certainly curative vaccination has a specific function which on account of the length of time essential to produce its maximal results is best seen in chronic cases. If the healthy body can produce specific anti-bodies as a result of prophylactic vaccination, the sick body must certainly retain some of this anti-body producing power. The intensity of the reaction, all other things being equal, depends upon the functioning power of the body cells. This power is at its height in the healthy body and may diminish as the cells are overcome by disease. The best time to use vaccine therapy, therefore, is not as a last resort, but early in the disease. If used early, the response will be more intense and the number of failures will be far less numerous.

525 Marsh Strong Building.

#### RECTAL HEMORRHAGE.\*

By ALFRED J. ZOBEL, M. D., San Francisco.

When blood appears from the mouth or urethra, whether it be in mere traces, free, clotted or mixed with sputum, vomitus or urine, it is generally a matter of much concern to the average individual. He usually consults a physician at the earliest moment, and the probabilities are that every modern scientific method will be employed to discover the source of the bleeding.

But if there should be even quite a profuse discharge of blood from the rectum, that same individual will most likely procrastinate, and, satisfying himself with a selfmade diagnosis of, "just a little attack of piles," will put off seeking medical at-

tention in the hope that the bleeding will soon pass away either of its own accord, or after the use of some proprietary remedy. Occasionally there is someone, perhaps more easily alarmed or a bit more cautious about his health than his fellows, who will come for advice immediately after the first appearance of rectal bleeding, but the great majority are apt to wait for some time before doing so. When they finally do seek advice, too often their self-made diagnosis is accepted without question or rectal examination, and treatment is given for the supposed "piles." That this is not an exaggerated statement, those will testify who see many cases of rectal cancer which are left undiagnosed until too late.

The history records in the department of rectal surgery of the San Francisco Polyclinic, and in my private practice, show that the complaint for which most patients come for treatment is "piles." No matter what is really wrong, every symptom about the ano-rectal region is attributed to this. Among the symptoms mostly complained of, "bleeding from the rectum" holds first place. In most cases it has been present, on and off, for more than one year, and usually no effort has been made to find the cause.

On examination we find that in most instances the hemorrhages do arise from internal hemorrhoids, but sometimes they do not. In fact, I believe the proportion of the latter is far greater than the general profession seems to be aware of, for numerous instances have come under observation where there has appeared to be a lack of knowledge that rectal bleeding might arise from other causes than hemorrhoids. As the result of neglecting to make a rectal examination, at times a cancer has remained undiagnosed, whereas had it been done the growth might have been found and removed in the early stages before it has become inoperable. It is this which offers the excuse for the presentation of this paper, wherein attention will be directed to the significance of blood discharged from the rectum, its possible points of origin, and the necessity for and value of thorough examination of the anus, rectum and sigmoid in every case where rectal hemorrhage occurs.

A patient's estimate of the amount of blood which he loses is not always to be taken at full valuation. Not that it is purposely exaggerated or underestimated, but because there are few people who are capable of stating it accurately. As a rule they claim that much more is being lost than is really the case. Seeing a reddish discoloration of all the water in the toilet bowl, is what often gives them the false impression that a large quantity of blood is being discharged. Yet, on the other hand, I have learned by experience that every patient's statement is worthy of full consideration, as there have been times when I doubted what seemed to be an exaggerated history, and found, much to my surprise, that the rectum and sigmoid was full of dark liquid and clotted blood.

Some patients will declare that they have never seen any bleeding, or have had only a slight discharge now and then. Even such a history will bear further investigation, for there are individuals

\* Read before the San Francisco County Medical Society, August 7, 1917.

who are quite careless about themselves, never taking the least pains to learn what is wrong even if they do have untoward rectal symptoms. Again, it may be that the light in the toilet was so dim as to make it difficult to see anything even if it was there.

Digressing here for a moment, I would make the suggestion that the diagnostician and general practitioner should invariably ask his patient if there is or ever has been any discharge of blood from the rectum, just as he always questions regarding the spitting, coughing or vomiting of blood from the mouth. If this becomes part of a routine questionnaire, it might sometimes furnish the clue to the diagnosis of a seemingly obscure condition. In a paper read before the American Proctologic Society, in 1916, on "The Consideration of Ano-rectal and Colonic Diseases in Life Insurance Examinations," I stated that, if more stress were laid on this question by life insurance examiners, their companies would many times be saved from accepting undesirable risks. The reasons therefor will appear further on in this paper.

Replies to the question whether the bleeding comes before, during or after stool, or without any relation to it, are likewise often misleading, simply because the patient may not be of an observant nature. From some patients you can readily learn if the blood comes away free, or mixed with mucus, pus or feces; or if it is bright red, dark, or tarry in appearance. From others you can gain but meager information.

The color of the bloody discharge depends of course upon where it originates, whether high or low in the bowel, and upon how long it has remained there. When bright red it comes, as a rule, from a lesion in the anus or rectum. Yet in a massive hemorrhage from high in the intestines it may also be this color, should it be discharged soon after leaving the bleeding vessel. This does not happen frequently. In all the large hemorrhages I have observed, where the proctoscope has shown that the bleeding must have arisen at some point above the lower third of the sigmoid, the blood was fluid, quite dark in color, and containing large clots, or was tarry in appearance, with a characteristic foul odor.

Though the lesions causing tarry stools come more within the province of the internist and the abdominal surgeon, yet for diagnostic reasons they must always be taken into consideration by the enteroproctologist, and so on this account will be mentioned briefly here.

Bleeding from gastric and duodenal ulcers and cancers is the usual cause of passages having a tarry appearance. They may also follow severe hemorrhages from the nares, lungs, ruptured varicose oesophageal veins, or typhoid ulcerations. Portal obstruction from any cause, but particularly so from cirrhosis or cancer of the liver, acute yellow hepatic atrophy, purpura hemorrhagica, hemophilia, leucaemia, aneurism, thrombosis of the superior mesenteric artery, and scurvy also may be causes. The rupture of an aneurism of the abdominal aorta into the bowel would naturally give rise to a massive hemorrhage; but the diagnosis

of the causation, if the case were seen for the first time, would be made on the post-mortem table.

In passing from the subject of tarry stools it may be said that they are not seen in carcinoma of the colon, as profuse hemorrhage seldom arises from these growths.

When there is profuse bleeding into and from the rectal cavity, it is generally from an ulcerating cancer of the sigmoid or the rectum. The discharge is then fluid, dark colored, contains clots, and is mixed with tissue debris and feculent material.

I shall pass over rapidly an enumeration of other lesions and diseases in which there is bleeding from the rectum, in varying amounts and color, either free or mixed with the stools, but with which again the internist is mostly concerned,—such as yellow fever, septicemia, pyemia, pernicious malarial fever, dengue, typhoid fever, jaundice, abdominal injuries, intestinal hemorrhages not due to tuberculous ulceration, such as may appear as an intercurrent event in pulmonary phthisis, sudden diarrhoeal attacks with bloody mucus which are sometimes present in exophthalmic goiter, the streaks of blood in the passages arising from the ingestion of arsenic and phosphorous, cancer or ulceration of the large and small intestine, intestinal parasites, crises of bloody diarrhea accompanied by paroxysmal pain which form one of the most important symptoms betraying the presence of arteriosclerosis of the intestinal vessels,—and confine myself only to the consideration of such causes of macroscopic bleeding as are localized in the anus, rectum and lower sigmoid, excluding therefrom hemorrhage during or following operation.

We shall begin by taking up rectal bleeding in children. This is a subject which has been given very little attention, as not many of these cases are seen. But since hemorrhoids are rather infrequent in children,—though they have been reported in those as young as three years of age, and even in infants, (in whom they are congenital),—and as hemorrhoids in children rarely bleed, a snap diagnosis of any rectal bleeding being due to "piles," is very apt to lead one into difficulties.

The most common source of rectal bleeding in those under ten years or so of age is the solitary polypoid adenoma, which is usually found on the posterior wall of the lower end of the rectum. It may be about the size of a cherry, and has frequently quite a long pedicle, which allows it to be brought out of the anus by the finger. It is often protruded during defecation and then appears as a small rounded reddish growth, at times with the surface bleeding, the result of abrasion by hardened feces.

Multiple polypi may exist. The bleeding then may be quite profuse, and the results most serious. Their presence can be diagnosed only by proctosigmoidoscopic examination. This can be done as easily in a child as in an adult.

Fissures of the anus are not uncommon in children. In infants, and in older children, they are often the consequence of the nurse ignoring the true direction of the anal canal and inserting a thermometer or an irrigator nozzle wrongly and



too forcibly into the rectum, causing a tear in the anal mucosa, which, becoming infected, develops into a true fissure. A drop or two of blood from this may be passed with every bowel movement.

Multiple fissures about the anus, the concomitant of early hereditary syphilis, bleed very easily during and between bowel movements. When there is an ulcer in the rectum, there may be bleeding with every stool. It may be only small in amount or so large as to cause general symptoms.

Traces of blood in the stools, and sometimes even quite profuse hemorrhages are present with the catarrhal proctitis and colitis of children. On examination the bowel mucosa is seen to be reddened and swollen, and to have a tendency to bleed quite readily.

There is one form of colitis,—that due to infection by the ameba *hystolitica*,—which is relatively rare in children. Yet it is to be remembered that it does occur, and that, as Henry Dwight Chapin says, it is perhaps more common than we think, the probabilities being that we have not looked for it with sufficient diligence. Butterworth has reported a case in an infant of thirteen months. There are frequent stools containing blood. It is said that the hemorrhages have even resulted in death.

In intussusception of the bowel, blood is seen mixed with the diarrhoeal stools. Carmichael states that when blood and mucus are found in the rectum of an infant under one year, it never fails to indicate the presence of an intussusception.

Foreign bodies and prolapse also may cause rectal bleeding in little ones. In prolapse there is rarely bleeding unless the mucosa is traumatised. While malignancy is an exceedingly rare condition in children, still it does occur, and must be thought of when endeavoring to locate the source of a rectal hemorrhage.

Turning now to those local conditions in adults which give rise to the symptom now under discussion we will commence with the one which is most frequently the cause,—internal hemorrhoids.

Bleeding is one of the chief symptoms of internal hemorrhoids. It is present in more than 75% of all the cases seen. In the majority of these but a few drops of blood are passed while the patient strains at stool. In the others, the piles become prolapsed, and when there is heavy straining, the blood is started in a fine continuous stream, spraying the sides of the toilet bowl and reddening the water at the bottom.

Numerous instances have come under my observation where the hemorrhoids constantly protruded while the sufferer was up and about, and the bleeding was so profuse that it saturated the undergarments and trickled down the legs.

It is not to be forgotten that hepatic cirrhosis may explain the occasional copious bleeding in some cases of piles, the discharge acting as a safety valve for the surcharged portal circulation.

Distended hemorrhoidal veins located high up in the rectum at times give rise to frequent and alarming hemorrhages in individuals who are otherwise healthy. They are not infrequently causes of occult hemorrhages, resulting in a severe anemia,

often leading to a false diagnosis of pernicious anemia; especially when no procto-sigmoidoscopic examination had been made.

On several occasions, the first time I saw the patient, I have mentally labeled the case as one of cancer, on account of the seemingly characteristic color of the skin, and the general appearance. A remarkable change for the better took place in looks and physical condition after the removal of the offending bleeding hemorrhoids.

While the subject of treatment was not to be touched upon in this paper, it may not be amiss at this point to say that an operation for the removal of bleeding hemorrhoids is always advisable even when the hemoglobin is very low from the repeated hemorrhages. In the majority of cases it can be done under local anesthesia without pain or shock to the patient. In certain selected cases the injection method of Terrell can be used. This will promptly and effectually stop the bleeding, and often will effect a cure.

There is rarely any bleeding from thrombotic external hemorrhoids, but I have seen a few cases where the overlying skin has ruptured and the vein kept pouring out its content in a small but steady stream, the contraction of the lumen of the vessel being prevented by the presence of the thrombus.

An ordinary simple fissure of the anus bleeds little, if any. A trace, or a drop or two, may be present following the passage of a hard stool. The latter may be lightly streaked with the sanguineous fluid. However, should the lower end of the fissure be without the grasp of the sphincter then there may be sufficient bleeding to trickle down the limbs.

An ulcer of the rectal mucosa is always accompanied by more or less bleeding. When the ulceration is caused by rapidly spreading syphilitic, tuberculous or malignant disease, the hemorrhage is often quite profuse and even alarming. One of the most severe hemorrhages which has ever come under my observation was caused by the ulceration of internal hemorrhoids following their injection with carbolic acid, a few days before, by one who had long experience in that method of treatment.

Prolapse of the rectum, unless of an aggravated type, or complicated with hemorrhoids, does not bleed except when the mucosa is irritated by rubbing when outside of the anus, or by being frequently replaced.

Hemorrhage from a pedunculated rectal adenoma is not infrequently met with when examining a patient presumed to be suffering from bleeding internal hemorrhoids. The blood is generally mixed with mucus, but it may be quite free when the growth becomes twisted on its pedicle, protrudes from the anus, or has its surface eroded.

With multiple adenomata of the rectum and colon, profuse hemorrhages and diarrhoeal movements, consisting of blood mixed with feces, are predominant symptoms. An accurate diagnosis of this condition can be made only by a sigmoidoscopic examination.

Similar symptoms are present in hemorrhagic

colitis. In this disease the quantity of blood lost in twenty-four hours may be as much as 500 c. c. Seen through the protoscope, the mucosa of the bowel presents a curious spongy appearance, with blood oozing from minute points on the walls, gathering, as one observer puts it, "like sweat on the brow."

There is more or less bleeding in severe proctitis and the various forms of colitis. The blood is generally mixed with mucus or feces, or with both.

Within the past month I saw a woman who had been under treatment for a mucous colitis. The main symptom was the passage of mucus, stained at times with blood. I found what I thought to be an adenoma about the size of a large cherry, situated on the second valve of Houston. This was removed. The report of the pathologist, Dr. Wm. Ophuls, was, "Carcinoma."

In my own experience there is the most bleeding in proctitis when there are erosions in the mucosa overlying the rectal valves. This has been conspicuously so in several cases of amebiasis which I have seen. One of these cases was of particular interest. The patient was brought to me, in consultation, for severe rectal hemorrhages which were presumed to have resulted from traumatism due to the use of a "cascade" syringe. Proctoscopic examination revealed numerous typical amebic ulcerations.

Speaking of traumatism, this often plays quite a part in the causation of rectal bleeding. Leaving aside that bleeding caused by gunshot, stabbing, impaling, or any other form of external violence, we find that it often arises from small lacerations of the anus, resembling severe fissures. These bleed readily when the buttocks are separated. They may result from pederastic practices, injuries due to improperly directed and roughly inserted syringe tips or examining instruments, or from the passage of large hard fecal masses, long retained and then forcibly expelled.

The possibility that a foreign body may be the reason for the bleeding should always be thought of, especially so when it occurs in children and feeble-minded persons. Fishbones, pins, and tooth-picks, are not uncommonly met with. Not long ago I found a large chicken vertebra obstructing the anal outlet of a woman whose symptoms before examination led me to think she had a fissure. Mummery has reported the case of a laboring man residing in a country where dysentery was indigenous. He was taken with acute diarrhoea, and passed much pus and blood by the bowel. After being treated by a doctor without results, for some four or five weeks, a rectal examination was decided upon, and revealed a broken egg cup impacted in the rectum.

Bleeding occurs in stricture of the rectum only when there is a complicating ulceration. During dilatation treatment there is more or less hemorrhage, but the etiology is then evident.

A rectal or anal fistula rarely bleeds unless it is probed. If the manipulation is unduly rough, considerably clotted blood will afterwards be found in the rectal cavity or anal canal, as the case may be.

Lynch tells us that periodical attacks of hemorrhage occur in chronic intussusception of the sigmoid. Bonney, Peters and Bullock report the same symptom in tuberculosis, without symptoms of tuberculosis of the intestine.

A most interesting, though rather rare, cause of rectal bleeding is that of vicarious menstruation. Personally I have never met with an instance of this, though cases have been reported by trustworthy clinicians. Irwin saw a woman who vomited blood and had a profuse rectal hemorrhage. There was no disease of the rectum to account for it. The bleeding occurred regularly at the time menstruation should have taken place, one to three pints of blood being discharged each time. Quintree mentions the case of a male, with lobulated well-developed mammae, who had an anal menstrual discharge which had persisted for eleven years. The blood escaped from the anus for two days, recurring every twenty-eight days. Numerous others have written of having seen individuals who had a periodic menstrual flow from the hemorrhoidal vessels.

I have purposely left for the last the mention of the most important of all the lesions giving rise to bleeding from the rectum; one which, by merely staining a mucous discharge, betrays early its insidious and deadly presence; one which, alas, is too frequently overlooked, and even unsought for; and one which it is most essential for the diagnostician to eliminate by a thorough recto-sigmoidoscopic examination,—I refer to cancer.

In this disease bleeding occurs earliest when the growth is near the anal orifice. It is then seldom very copious, and more apt to come from co-existent internal hemorrhoids. A short time ago I saw a man who had had his hemorrhoids removed about a month ago. No examination of the parts above the hemorrhoidal area had been made. All his symptoms grew worse after the operation. My examination disclosed an inoperable cancer encircling the rectal cavity just above the site of recent operation. Neglecting to make a digital examination had led to the error.

Cancers of the rectum, unlike those in the mobile sigmoid and colon, being in a fixed organ readily become traumatised by passing hard fecal masses, and so become ulcerated early, with consequent bleeding. The bleeding is slight at first but, as the disease progresses, it becomes more profuse, and death has already occurred from exsanguination when a large blood vessel has been invaded.

Having discussed the many conditions which may give rise to rectal hemorrhage, we will conclude this paper by again suggesting that which the writer has repeatedly advised in former papers read before this and other medical societies, namely, always make a complete ano-rectal examination in every case presenting any symptoms referable to those parts. Above all else, make a digital examination. Rule out the possibility of cancer whenever there is rectal bleeding. Even when you feel reasonably assured that the cause for a sanguineous discharge lies in internal piles never operate until you absolutely know that cancer, ulceration or

benign growth is not existant above the hemorrhoidal zone.

Always use the greatest care in making a rectocolonic examination after a recent hemorrhage. Even though skilled in the use of the sigmoidoscope, one sometimes finds it quite difficult to discover the exact spot from where the bleeding arises, and repeated examinations may be required before it can be located.

### THE MANAGEMENT OF SURGICAL RISK. A REVIEW OF 100 KIDNEY AND PROSTATE OPERATIONS, AND 50 CASES OF ENLARGED PROSTATE NOT OPERATED UPON.\*

By FRANK HINMAN, A. B., M. D., San Francisco.

Pre-operative, operative and post-operative periods of management of certain surgical cases are often so interdependent that careless attention to the details of any one may counteract an absolutely perfect execution of the others. Mismanagement brings disaster most frequently in cases with marked clinical abnormalities. The commonest abnormality in old men with enlarged prostates is renal disturbance, and the problem is similar to that which occasionally arises in renal surgery. The risks encountered in both will receive emphasis in a joint consideration. The operative, clinical and therapeutic forces which control surgical risk may be outlined as follows:

#### I—Operative Conditions, depending on

- A, Region operated and Type of Operation.
- B, Surgical Technic and Team Work.  
(Skill of performance on the part of the surgeon, surgical assistants and nurses.)
- C, Anaesthesia  
Choice  
Skill of Administration  
Duration.
- D, Complications  
Operative  
Post-operative.

#### II—Clinical Conditions, depending on

- E, Age of the patient.
- F, Physical Abnormalities  
Cardiac  
Renal  
Cardio-renal  
Diabetes  
Anemia  
Infection.

#### G, Physical Reserve or Stamina.

#### III—Therapeutic Conditions, depending on

- H, Methods and Period of Preparation,  
Preliminary  
Pre-operative.
- I, Methods of Post-operative Treatment.

The present consideration will be confined to an analysis of therapeutic conditions.

One hundred and four surgical cases and 50 contemporary prostates who have not been operated (in the two years 1915-1916) furnish the basis for the following review of methods of man-

agement. The prostate was enucleated by the perineal route in 49 and suprapubically in two cases. There were 24 nephrectomies, 8 nephrotomies, 3 ureterotomies, 2 pyeloplasties, 3 lumbar drainage cases, 5 pyelotomies, 2 ureterectomies and 6 nephropexies. There have been two operative deaths in the series, a mortality of 1.9%, both of which followed prostatectomy, giving an operative mortality of 4% (51 cases) for the prostate and no mortality for the kidney cases. Five of the prostates (2 cancer) and one case of advanced bilateral renal tuberculosis (general phthisis) have come to death since operation, a final mortality, in two and one-half years, of 14% for the prostates and 0.1% for the kidneys. Nine of the unoperated prostates (1 cancer) have died in the same period of time. An unoperative mortality of 18% deserves an honest scrutiny of these two probable factors: delay of the patient in seeking treatment until the condition has become practically hopeless, and the particular method of preparation.

The one complication in both prostate and kidney cases which deserves serious consideration is infection. In the prostate series urinary infection was practically universal. In 29 of the prostatectomy cases the pyuria was severe and present in a milder form in 12 others. In the milder forms infection is usually limited to the bladder and urethra, but in the severe types ureteritis, pyelitis, pyelonephritis or pyonephrosis is probable. This was proven by ureteral catheterization before operation in four cases and on the post-mortem table in all of six of the nine unoperated fatalities. These kidney and bladder infections may show exacerbation during the period of preparation or following operation, and lead to a speedy end; or may continue in a chronic form for months or years and eventually overcome local tissue resistance or reduce general resistance and initiate secondary infections elsewhere. The autopsies of two cases which lived almost a year after operation, showed cystitis, ureteritis, pyelonephritis, enteritis, colitis and broncho-pneumonia. In all but five cases of the unoperated series pus was present in the urine microscopically. Of the nine cases which have died each of the six necropsies showed a pronounced cystitis, ureteritis, and pyelonephritis. Three had a terminal broncho-pneumonia and one a lobar pneumonia. Endocardial vegetations were present in two and the myocardium showed inflammatory changes in three of the cases. In the other three fatalities the clinical evidence pointed to similar pathologic conditions, clearly to a cystitis, ureteritis and pyelonephritis.

The seriousness of urinary infection in kidney surgery is closely related to that of prostatism. This was impressed by an early experience as House Resident. A pyelotomy for stone was highly successful from an operative standpoint, but there was a persistent post-operative temperature, leucocytosis and every clinical evidence of severe sepsis. The streptococcus was recovered from the urine and the wound drainage. Probing with a clamp failed to open any retention abscess. Examination after death on the fifth day showed an acute bilateral pyelonephritis with ureteritis

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and cystitis. Excluding cases of infection of the surgical kidney there remain seven of this series in which a pyelitis or pyelonephritis imperiled the activity of the good kidney. Three other cases had bilateral stones and severe infection with small choice as to the better side; three others, bilateral tuberculosis, in two of which, however, the involvement of the supposedly healthy side was evidenced only by a positive guinea pig, function and urine being normal. Of the 50 cases, 53 kidney operations, 17 had bilateral disease.

The therapeutic management covers preliminary (preparatory, pre-operative) operative and post-operative periods, and comprises general and special procedures. The general principles of the management of clinical conditions belong more strictly to the field of internal medicine. The advice and judgment of a good internist is inestimable. The determination of cardiac, renal or cardio-renal involvement necessitates careful and repeated examinations, blood pressure records, cardiograms, renal functional studies and, in order to place the relative responsibility of the heart or kidneys in the final determination of cardio-renal cases, numerous therapeutic tests. Treatment will be in accord with the picture developed by these clinical and laboratory findings. It is important that the clinical and laboratory studies be continued throughout the course of management so as to control treatment. A routine procedure for all cases should be regarded as pernicious. Each case needs to be managed on its own merits. The relatively normal case deserves as jealous attention to the details of management as the severe clinical risk. The two operative deaths of this series were regarded as fair risks from the clinical standpoint. In old prostatics the clinical pictures are complicated by the influence of urinary back pressure. For this reason the first impression of grave cardiac or renal insufficiency may prove upon catheter relief of obstruction to be a manifestation of no great consequence. True nephropathies and cardiopathies have often preceded the disturbance from back pressure and with infection superadded present a grave prognosis and require prolonged and careful preparation. The improvement during the period of preparation is an indication of the ability to carry the burden of the cardiopathy or nephropathy after prostatectomy.

Preparatory management: The special procedures in the preparation which belong more strictly to the field of urology deal with the problem of urinary retention and urinary infection. Internal antiseptics and sedatives, urethral catheterization, cystotomy drainage, and ureteral catheterization comprise the methods which are variously used by urologists and which have undoubtedly contributed very considerably to the remarkable reduction in the mortality of prostate and kidney surgery in recent years.

The only internal urinary antiseptic of any particular value is hexamethylenamine. In order to manifest antiseptic action a certain concentration for a period of exposure in an acid urine is required. At least 15 grains by mouth three or four times daily are necessary even in favorable cases and then its short stay precludes antiseptic

power in the renal pelvis, except possibly in certain hydronephroses or conditions of concentrated excretion. The excretion of the drug is influenced by extrarenal and intrarenal conditions, the important ones being, respectively, a partial conversion into formaldehyde with a commensurate loss for the urine in the acid contents of the stomach, and a limited excretion by the kidneys proportional to the amount of normal secreting tissue. It will be seen that the prostatic is a most unfavorable case for hexamethylenamine therapy. The gastric irritation frequently caused by it antagonizes important dietary regulations which are so essential in the management. (The drug may be given in salol-coated capsules by mouth or by proctoclysis or rectal suppositories.) In cases of renal insufficiency it not only is useless because of the delayed and scanty output, but adds another excretory load to an already overburdened kidney. In the bladder, where normally it has its greatest usefulness, catheter drainage before and perineal or suprapubic drainage after operation almost completely nullifies its action. In addition, the ingestion of large quantities of water, which the general treatment of these cases so frequently demands, dilutes the drug by diuresis sufficiently to destroy antiseptics. In renal insufficiency cases, acid sodium phosphate, which in other cases may be used with advantage in conjunction with hexamethylenamine to increase urinary acidity, tends to increase an already dangerous blood acidosis. In most unilateral surgical kidneys, however, hexamethylenamine has advantages. In the majority of these cases the bladder functionates normally and the drug is excreted in double concentration by the hypertrophied healthy kidney, and probably exerts considerable prophylactic and curative bacteriostasis for the healthy kidney and for the bladder, but it is of little benefit to the diseased side.

Methylene blue in doses of one to five grains three or four times a day is of value in certain staphylococcal and streptococcal infections; as it is bacteriostatic to staphylococci in dilutions of 1 to 150,000, but it also tends to upset digestion. In the prostatic and in a large proportion of surgical kidneys, urinary infection is best treated by external urinary antiseptics and germicides by means of a urethral or ureteral catheter.

Certain other drugs with no claim to antiseptics are of value for their sedative and alkaline properties. In certain types of vesical or urethro-prostatic irritation and congestion simple bicarbonate of soda affords considerable relief. The "bladder mixture" of tincture of hyacinthus and potassium citrate is often invaluable. When required the bromides and other hypnotics should be used. Even the occasional urethro-vesical instillation of novocain by affording a few hours of rest will mark the beginning of the up-grade. In these irritable conditions the regulation of fluid intake is sometimes helpful; limitation of fluids in cases without much infection in which bladder rest brings relief, forced fluids, in others, for purposes of autogenic lavage.

A great deal has been written of the value of catheter preparation of prostatics, but little in regard to the details of such preparation. A num-

ber of cases of this series illustrate the grave dangers of catheter mismanagement. It is probably fair to state that these examples of a better hindsight occurred in the general service of charity hospitals and none in private practice. Case 36, Group II, entered a public ward with a residual of less than 100 cc. and a renal function that was practically normal. He was urinating every  $\frac{1}{2}$  to 1 hour, however, and was almost worn out. The interne placed a retention catheter which was frequently withdrawn by the patient only to be promptly replaced by an orderly. A pronounced urethritis and cystitis developed. Loss of sleep and worry quickly undermined the patient's resistance, and neglect of the bowels for four days hastened the course downward. A (ascending) renal infection developed and the patient died of a terminal pneumonia less than one week after admission.

The institution of catheter treatment should be made with strict attention to the past history and general clinical condition, the amount of residual, the degree and duration of urinary infection, the severity of urethro-vesical irritability and such vesical complications as stone, diverticulum, and tumor. The chief objects are to relieve any disturbance of renal function from back pressure and allow of kidney readjustment to the unaccustomed state of urinary freedom; to control or limit urinary infection, and, occasionally, simply to reduce urinary difficulty and frequency. The two methods available are continuous and intermittent catheterization. The choice will depend upon which method will be better borne by the patient and will more efficiently secure the desired result. Often they can be used alternately to advantage. Catheter treatment is not indicated in every case, but there will be few cases in which in some form it can not bring pre-operative benefit. Catheter life is well known to be precarious and carries a mortality of 15 to 20 per cent. It should never be started unless from necessity, except as a means of preparation for operation; for once begun it frequently can not be safely stopped. The present consideration deals strictly with pre-operative conditions.

Cases of large residuals (over 300 cc.), irrespective of bladder capacity, urinary infection and renal function; cases of small residuals with small bladder capacity, and most cases with pronounced pyuria, irrespective of residual and bladder capacity, are amenable to catheter treatment. The retention catheter is generally better suited to large residuals and interval catheterization to the others. The very large residuals should be relieved gradually because back pressure may have produced pelvic dilatation with resultant compression of the blood vessels of the renal pedicle, and any sudden relief might result in a dangerous renal hyperemia and congestion. For the first few days, therefore, the catheter should be plugged with a cork and the bladder emptied at intervals of every two to three hours. Each time a thorough bladder irrigation should be given, and 50 per cent. of the then bladder capacity left in until the next interval irrigation. Uninfected cases with large residuals demand extra care to combat the onset of in-

fection when put upon catheter life. The case with a small contracted bladder requires frequent irrigations in an effort to enlarge and dilate the bladder.

Stiff gum catheters (silk woven) are preferable and those with a single or double elbow pass easiest. The use of a Benique obturator (prostatic stylet) is frequently required. Thorough irrigation and local anesthetization of the urethra should precede each catheterization. The catheter must be smooth, sound, and well lubricated. It should be passed slowly and without trauma. Internes and orderlies should be taught to catheterize without the use of sterile rubber gloves, which give a false security of asepsis.

Generally bladder irrigations, followed frequently by instillations, are essential in the care of a catheter after its insertion. The gravity method by which one to two liters of solution may be run in is much preferable to the syringe, except in certain cases in which bladder dilatation is desired. Boracic acid which is bland and non-irritating should be used oftenest. Potassium permanganate, bichloride of mercury, silver nitrate, and other antiseptics may be used in certain cases. An instillation after a boric acid wash of some one of the non-irritating germicides is of great value. One-half to one ounce of argyrol, 5 per cent.; silver iodide, 5 per cent.; protargol,  $\frac{1}{2}$  of 1 per cent., etc., may be injected into the bladder and retained as long as convenient. Goulay's solution (1/10 per cent. of acetic acid and potassium acetate) is beneficial in some colon infections. With certain strains of bacillus coli instillations of solutions of the bacillus bulgaricus considerably relieves irritability and often permanently lessens infection. It is advantageous to use a different substance for instillation each day so that the organisms are given no chance to acquire a drug immunity. It is very important to carefully watch the condition of the urethra. Injections at the meatus alongside the catheter may be given once or twice daily in order to keep the urethra in a clean and healthy condition. Care should be taken not to use too strong or irritating solutions. Upon the evidence of urethral discharge or irritation the catheter should be withdrawn and left out three to four hours before replacement; or, periodic catheterization may be substituted for a few days, the urethra meanwhile being treated by irrigations or injections. It is a safe rule never to retain a catheter longer than three to four days, no matter how successfully it works, without removing it in order to cleanse and treat the urethra. Epididymitis is almost invariably the result of an antiperistalsis of the vas deferens induced by reflex stimulation of an inflammatory or irritated colliculus.

The frequency with which irrigations and injections are used must be regulated by the type and severity of the infection that is present. With little or no infection, twice daily is as long an interval as is safe, and it is well to follow one of these daily irrigations by an instillation. In badly infected cases, irrigations every three hours, alternately, of boracic acid and potassium permanganate;

each boric irrigation followed by a vesical instillation, is advisable.

Catheterization treatment requires a great deal of work day and night. A few hours of neglect will offset weeks of care. Without sufficient and trained assistance the surgeon is powerless, and the case will be far better without the risk of catheter treatment. Under such circumstances suprapubic cystotomy is the better choice from the beginning.

**Suprapubic cystotomy:** Under ideal conditions suprapubic drainage is rarely required in the preparation. Its advantage, as shown by the results obtained by men who perform cystotomy as a routine in all cases of suprapubic enucleation has not been proven. Cases, however, with marked urethrovvesical infection and irritability, with calculus, tumor or infected diverticulum in which catheterization is difficult, painful and inefficient should have early suprapubic drainage established. Of the three cases in which this was done in this series not one survived. The cases, however, were all critical and furnish no potent argument against cystotomy. Skillful catheter treatment offers equal advantages for combating infection. Cystotomy is only to be preferred when the necessary assistance for proper catheter treatment is not available and, occasionally, when bladder complications exist.

**Renal lavage:** The virtue of renal lavage in non-tubercular infections of the kidney is universally recognized. It is practiced almost exclusively by urologists, and, by them as a class, with unardonable infrequency. The wisdom of the preparatory treatment of an infected kidney before removal of its functionless fellow is indisputable. It is rare that emergency surgery obtains in kidney work, and a week or ten days of such preparatory management will ward off an occasional post-operative collapse of an organ upon whose healthy activity the very life of the patient depends. In cases of bilateral infections with bilateral stones the establishment of local immunity is essential. Operation in the presence of leukocytosis and fever is precarious. Ureteral catheterization and renal lavage, by dilating the strictured and diseased ureters and establishing better drainage, and by combating the infection, will greatly reduce surgical risk. It will be seldom that ureteral catheterization can be done in the presence of an intravesical hypertrophy, but its advantages in cases of pyelitis and pyelonephritis are obvious.

It was done in two cases of this series which suffered an acute exacerbation during preparatory treatment. The kidneys were lavaged with one per cent. silver nitrate, twice in one and four times in the other, with great benefit in both. A word of caution is excusable. Cystoscopy in cases with very large prostates is difficult and may produce severe reactions. Successful ureteral catheterization in any event would be improbable. It is essential that trauma be avoided. No. 18 F. single catheterizing cystoscope occasions the least disturbance. The results in the two cases mentioned justify the more general use of this method of combating renal infection in the preparatory treatment of enlarged prostate cases.

**Pre-operative treatment:** Surgeons have begun to realize the error of pre-operative purgation. It

weakens the patient and leaves the bowels in a partially paralyzed condition. (Alvarez.) Recall your own individual physical depression immediately following an unusually efficient cathartic. This intestinal mal-treatment carries a real danger in renal surgery in which rough handling of the kidney pedicle may injure, functionally, at least, the sympathetic centers which largely control intestinal paristalsis. There was no instance of pseudoparesis of the bowels after any of the 53 kidney operations of this series. It is believed that the interdiction of a purge immediately preceding the operation is largely responsible. Reasonable catharsis, two to three days before, with an enema on the preceding night and morning, is much more logical. With this precaution the post-operative use of eserine or similar drugs to stimulate intestinal paristalsis are superfluous.

It has also become a surgical custom, largely on the plea of anesthetists, to add to the mental torment of the patient about to be operated that of physical thirst by refusing him all fluids from midnight on. This cruel treatment is not only unnecessary, but, in the type of cases under discussion, adds greatly to surgical risk. Water is the most efficient and safest diuretic and was given in both prostate and kidney cases right up to the time the patient was taken to the operating room. In the event of the operation being scheduled late in the morning or early in the afternoon, a cup of weak coffee or a glass of milk and a cracker may safely be allowed in the early morning upon awakening. This treatment not only gives them physical satisfaction, but insures a continued fluid stimulus to the kidneys during a period when it is most needed. There has been no instance of vomiting during the operation and no increase afterwards. There has also been no instance of post-operative anuria.

**Operative management:** The judicious placement of thorough drainage at the operation will most effectively combat post-operative infection. This is vital to success in kidney surgery. Rubber tube drainage is the most efficient. In nephrotomy, pyelotomy or plastic pelvic surgery in the presence of infection, the placing of small rubber tubes through the kidney substance into the pelvis, which may thus be irrigated at intervals, has given gratifying results. In several instances of infected nephrolithiasis a small rubber urethral catheter was passed through the nephrotomy opening down the ureter for several cms. with perforations at different levels in the pelvis. Through this catheter ureteral and pelvic irrigations were given with complete cure of the infection. In another case of infected hydronephrosis and stone a pelvic plication was completely successful because of the ability to combat the infection through a catheter similarly placed. In some of the cases of bilateral infections where little secreting kidney tissue is left, and what there is must be most carefully preserved, such measures are indispensable.

**Post-operative management:** Infection still remains the great problem of post-operative management. It is a mistake after operation to leave the patient to combat his urinary infection unassisted. Urethrovvesical irrigations and instillations with, in



some cases, periodic catheterization for purposes of more thorough vesical lavage, and, in cases with kidney infections, ureteral catheterization and pelvic instillations, are indicated. The facts definitely declare in favor of such persistent urologic after care. The two late deaths following prostatectomy, with their pictures of cystitis, ureteritis and pyelonephritis, the known tendency of infection to lead to stone reformation after nephrolithotomy, demonstrate that the responsibility of the urologist does not cease upon discharge of his patient from the hospital.

**Summary:** The preliminary, operative and post-operative periods of treatment of prostate and kidney cases have an interdependent and equal value. Neglect of the details of any one may destroy the success expected in a perfect execution of the others.

Urinary infection is the most prevalent complication for treatment in each period of management. The majority of late fatalities are secondary to a refractory or untreated urinary infection.

The methods of management comprise general and special procedures. The former belong more particularly to the realm of internal medicine and will vary according to the clinical complication present. The special methods have been developed largely by urologists and comprise urinary antiseptics, urethral catheterization and urethrovaginal therapy, cystotomy drainage, operative drainage and ureteral catheterization with renal therapy.

No satisfactory internal urinary antiseptic is known. Hexamethylenamine is the most efficient. In conditions of prostatism, however, bladder drainage and forced fluids largely nullify its value, and a true nephropathy, which so frequently co-exists, contraindicates its use. It has considerable prophylactic value in renal surgery.

The use of the urethral catheter is dangerous except under continuous supervision and in expert hands. Without experienced management the many grave complications that are likely to follow offset its anticipated advantages. Prostatic cases should not be subjected to preliminary catheter treatment indiscriminately nor as a fixed routine. There will be a small number of cases which will do better with no catheter treatment of any kind. Retention or periodic catheterization should be selected according to the individual indications and they can frequently be used alternately to advantage. Frequent urethral and bladder irrigations with non-irritating antiseptics are essential in the care of the catheter. Boric acid alone is unsafe, and while best adapted for general use should be supplemented by argyrol, potassium permanganate, bichloride of mercury, formalin, etc.

Cystotomy drainage will be demanded in relatively few cases, usually those complicated by vesicle stone, tumor or diverticulum. With inexperienced help cystotomy drainage is safer than urethral catheter drainage.

Severe purgation and the limitation of fluids just preceding operation are obsolete surgical habits, particularly apt to be pernicious in prostatic and renal surgery. Better results will follow the giving of the cathartic several days before operation and of fluids up to the moment the patient goes to the operating room.

The intelligent placement of rubber tube drainage at the time of operation will often prevent many grave post-operative complications and enable other complications to be safely treated.

Ureteral catheterization with dilatation of the ureters and pelvic lavage should be made use of frequently in the preparatory and post-operative treatment of renal infections complicating prostatic and kidney surgery.

516 Sutter Street.

## ACUTE GASTRO-DUODENAL PERFORATIONS.\*

TREATMENTS, DIAGNOSIS, REPORTS OF SIX CASES, FOUR RECOVERIES.

EDMUND BUTLER, M. D., San Francisco.

About fifteen per cent. of gastric ulcers and about twenty-five per cent. of duodenal ulcers rupture, according to Allaben, in the *Illinois Medical Journal*, 1909. Musser maintains that 28.1% of all ulcers perforate. Ulcers are more frequent in the male, and perforations occur in much greater proportion than in the female. Acute ruptured ulcers are most often located on the anterior wall of the stomach and first portion of the duodenum. The histories of cases of acute rupture are all somewhat similar. Previous gastro-intestinal disturbance may or may not be a part of the history. It is difficult and often impossible to get a satisfactory history from patients suffering from a ruptured ulcer.

The history in the chronic perforations may be misleading, but it is not in these cases that an error in diagnosis is so disastrous; so in this paper, only acute perforations will be considered.

Given a history of acute, severe, knife-like pains in the pit of the stomach, with or without previous indigestion, coming on when the stomach is empty or full, taking place while the patient is at rest or at work, acute perforation must be considered. Vomiting occurs usually shortly after the rupture, regardless of the location of the ulcer. Blood is very seldom noted in the vomitus. Vomiting is more continuous following duodenal perforations. Constipation is the rule, but a bowel movement hours after the perforation is possible with a mild peritonitis. The sudden, severe pain is not influenced by large doses of morphia. Later, when the patient becomes toxic from absorption, morphia is very effective for the relief of the agonizing, gnawing pain of that stage. The location of the pain is in the pit of the stomach.

*Examination of the patient during the early hours of the condition.* The patient as a rule assumes the dorsal position, crying for relief from the pain. The thighs are flexed upon the abdomen. Beads of perspiration stand on the brow. The face is not anxious, but gives evidence of great distress. The breathing is thoracic in type, and slightly more rapid than normal. The abdomen is retracted, rigid and board-like. The rigidity is most marked in the epigastrium. The tenderness is most marked in the region of the rupture

\* Read before the San Francisco County Medical Society, October 16, 1917.

in the upper abdomen. Pressure on any part of the abdomen causes epigastric pain. The arches of the ribs are rigid. Tympanites is absent. Later, as peritonitis progresses, distension and dullness in the flanks are present. Liver dullness is of no value in the early diagnosis. It is a difficult procedure to percuss accurately the liver, because of the extreme muscular rigidity masking the note. A variable note is transmitted from the greatly compressed hollow viscera. Rectal examination is negative in the early stages. The pulse is normal or slightly accelerated. Temperature is normal or slightly raised. Blood pressure is unchanged for the individual. Blood count shows a rise in the polymorphonuclear coming on very shortly after the rupture. The correct diagnosis is often overlooked because the vomitus does not contain blood, the liver dullness is present, and shock is absent. Not one of these findings is essential to a diagnosis of ruptured gastric or duodenal ulcer.

The peritonitis often rapidly extends down along the gutter formed by the ascending colon and lateral abdominal wall and a point of great tenderness is found in the region of the appendix. This is particularly true in duodenal rupture. It is often difficult to make a correct diagnosis, but it is imperative to make a diagnosis of an acute surgical abdomen, and not that of beginning appendicitis, to be treated expectantly by Ochsnerizing. With the history of acute, severe pain in the pit of the stomach, plus board-like abdominal rigidity, a diagnosis of acute ruptured ulcer should be made, to be substantiated or disproved by other findings.

Acute pancreatitis, acute phlegmonous cholecystitis with or without rupture, mesenterio-thrombosis, acute gastric dilatation, gastric crises in tabes dorsalis, food poisonings, appendicitis, ruptured ectopic pregnancy, and traumatic rupture of inter-abdominal viscera, are the usual conditions which have to be considered in the differential diagnosis.

In acute pancreatitis, shock, cyanosis, and the grayish color of face develop very rapidly. The upper abdomen is less tender and the rigidity is less marked. Especially is thus true while the inflammation is confined to the lesser sac.

In phlegmonous cholecystitis, the tenderness is in the right hypochondrium. The tenderness and the pain remain more localized. There is no spreading of the peritonitis. If the gall bladder is ruptured, it would be very difficult to differentiate by the signs and symptoms, but a definite history of previous definite gall bladder disturbance would be valuable.

In mesenterio-thrombosis, the evidence of thrombosis in other parts of the body, the absence of the scaphoid abdomen and marked rigidity, together with the presence of rapidly developing shock and tympanites, should rule out ruptured ulcer.

In pneumonia, the examination of the chest should make the diagnosis.

Acute gastric dilatation gives a "doughy" abdomen. The character of the vomitus is pathognomonic. Shock is an early phenomenon.

In gastric crises, the history, other signs of tabes, absence of rigidity and definite tenderness, should guide the diagnostician.

A history of indiscretion in diet, vomiting and for the rupture may be located in the stomach signs and the presence of shock, should be helpful in diagnosing food poisoning.

In traumatic rupture of a hollow viscus, the history only would be an aid in differentiating. diarrhea, the absence of characteristic abdominal or the duodenum, and the clinical pictures are identical.

In appendicitis with perforation, the late stage is very difficult to distinguish, for the clinical picture is the same, but the history of the early attack should be valuable. Early in the attack the mistake should not be made.

In ruptured ectopic pregnancy, the blood examination shows a low hemoglobin, a low red count and a moderate polymorphonuclear leucocytosis. The pelvic examination and the history are the main diagnostic aids.

The treatment of acute, perforated ulcer is surgical. Deaver states that the mortality is 99 per cent. in cases not treated surgically. Immediate laparotomy without waiting for shock to subside, is the treatment indicated; for if shock is present, it speaks for the extreme seriousness of the case, and is all the more reason for haste. The choice of the incision is left to the operator. The long median epigastric incision causes less bleeding, may be more rapidly and securely closed and gives plenty of room. A rapid search should always be made for other perforations. The technique of closing the perforation and the suture material used is not of so much importance, as long as the perforation is securely closed and the gut is not obstructed. A purse string suture of catgut, reinforced by several interrupted catgut Lembert sutures, is sufficient, if the induration permits of infolding. A double row of Lembert sutures of catgut closing the perforation, and the additional tacking of the greater omentum over the suture line, is about as secure a procedure as could be suggested. An occasional perforation is found which it is impossible to close. Then some adjacent viscera may be used. Downs used the gall bladder, others have used the omentum. Large gauze packs down to the perforation leading out through the wound have been used.

Flushing out the peritoneal space is not advisable. Cultures made from this fluid, the greater part of which is peritoneal exudate, are as a rule negative or give growths of streptococcus or staphylococcus of low virulence, as indicated by investigations of Cushing and Livingood and of Dudgeon and Mayberry. Flushing prolongs the operation, chills the patient and necessitates a great deal of unnecessary handling of bowels and injury to the peritoneal surfaces. An occasional case may require sponging or aspirating, where food is present in great quantities, but eviseration and irrigation is seldom indicated.

(Concluded in May issue.)

## Book Reviews

**A Text-Book of General Bacteriology.** By Edwin O. Jordan, Ph. D., Professor of Bacteriology, in the University of Chicago and in Rush Medical College. Fifth edition thoroughly revised. Octavo of 669 pages, fully illustrated. Philadelphia and London: W. B. Saunders Company, 1916. Cloth, \$3.25 net.

Since the enthusiastic reception accorded the first edition of this attractive text-book, no less than ten reprints and revisions have been justified by the demand for Professor Jordan's work. This fifth edition has all of the material that made the preceding editions so valuable as elementary and intermediate texts and has some additional material on the classification of pneumococci, on mouth entamebae, on the Schick reaction, Hodgkin's disease and other matter that presents new aspects. Further than this it seems hardly necessary to dilate upon the merits of this very well known and well liked class-room manual. G. H. T.

**Surgery and Diseases of the Mouth and Jaws.** By V. P. Blair. 3rd edition. St. Louis: Mosby, 1917.

Major Blair has been made head of the Sub-section of Oral and Plastic Surgery in the Medical Department of the Army.

The new edition of his excellent treatise contains numerous additions. The chapters on the repair of defects and plastics have been elaborated, and considerable material on gun-shot injuries and military dental surgery has been added.

The book is singularly complete. We need not call it to the attention of dental surgeons—it is already their standard guide. We would, however, heartily recommend general surgeons to study it. They will gather many new ideas and a much-needed knowledge of what we owe to dentistry in the surgery of the face, jaws and tongue. L. E.

**The Prescription, Therapeutically, Pharmaceutically, Grammatically and Historically Considered.** By Otto A. Wall, fourth edition. St. Louis: Mosby Company, 1917.

This book treats the prescription historically, pharmaceutically and legally. The author traces its evolution almost from the ape man to the present day. He dissects it thoroughly and discusses each part in detail. He does not treat the legal status as thoroughly as we might wish. Perhaps he is wise in this. There are so many conflicting court decisions regarding the ownership of a prescription that the question seems to belong in the "how old is Ann" class. The book is one which will help every physician and pharmacist who reads it. The older practitioner will find it interesting and instructive with nothing pedantic about it, and the medical student who reads it carefully, will find added dignity in the scrap of paper called a prescription. F. L.

**Hygiene of the Face and Cosmetic Guide.** By Richard W. Müller, M. D. New York: Dutton, 1917.

Here is a subject of perennial interest to the laity especially to the feminine portion thereof. That the matter should be approached by a medical man so much in the method of the Sunday supplement is to be regretted.

The volume is a compilation of useful and useless formulae which the author is frank enough to state he has gleaned from many sources. "He has even read and taken from journals on beauty."

The volume is scarcely worthy of serious review. That a practitioner of medicine should attempt to

stimulate the feminine habit of dabbling on chemicals to enhance beauty, when the practice is notoriously overdone already, is certainly to be deprecated.

To gain an adequate idea of the book one really needs to look no further than the publisher's notice on the outer cover whereon it is stated that with a little intelligent treatment wrinkles and spots may be kept at bay. One can imagine the keen-eyed seeker after beauty spying these alluring words on the cover, carrying it off in triumph and a few days later emerging with stacks of masks, vibrators and such creams for wrinkles as the author's mixture of lanolin, rose water and witchhazel.

E. D. C.

**Handbook of Gynecology.** By H. F. Lewis and A. de Roulet. St. Louis: Mosby, 1917.

There is not enough original material in this book to warrant its publication. Here and there is a good suggestion, but there is too much detail in matters of minor technique. A lecturer could, by adding much of his personal experience, make this book the basis of a lecture or demonstration, but to expect others to adopt it is too much. M. I. J.

**Impotence and Sterility with Aberrations of the Sexual Function and Sex-Gland Implantation.** By G. Frank Lydston, M. D., D. C. L. Price, \$4.00. Riverton Press, Chicago, Ill.

The reading of this masterwork was a pleasure and highly instructive, but to do it justice in a short review is rather a difficult task. From the first pages to the closing words everything is relevant and valuable. The author's enormous personal experience, his keen power of observation dominate every question. We mention the lucid descriptions of various forms of so-called hermaphroditism; the ingenious theory of explaining qualitative and quantitative psychic and physical aberrations and perversions by quantitative and qualitative perversions of the sex hormones; the dictum that it is probable that no man who had indulged in sexual congress or masturbation to any degree prior to full maturity is ever possessed of normal sexual sensibility in later life; the conservative views in regard to masturbation and sexual excesses; another dictum that the sex gland hormone is the most important of all in the nutritive hormone cycle; the explanation of infertility in some marriages where both parties may later prove fertile by hormone incompatibility; the sane and practical views on matrimony; and, the most important of all: Lydston's experiments and splendid successes in sex gland transplantations. The author opens new horizons in regard to sterility in woman and the possible correction of some vicissitudes of human breeding, he raises many questions, and this work of his is sure to stimulate study and research of all-important endocrinology. Lydston hopes to succeed in greatly impeding the wheel of time in its remorseless grind upon human life. His experiments and experience justify him in saying, and we must agree with him, that therapeutic effectiveness of implanted cells is no more an open question. We hope that other surgeons will follow Lydston's lead, and strongly urge every physician to read this book. V. G. V.

## Correspondence

FROM SURGEON U. R. WEBB, U. S. N.

U. S. S. Solace.

To the Editor:

Your letter of February 14 has just reached me. I was detached from duty at Mare Island and ordered to command the "Solace" a few days after writing you concerning the draft for physi-



cians, etc. Dr. Woodward has taken up that work, I believe. We still need physicians. The work increases with the expansion of the Navy. I wish I could write you of our activities, but the censor forbids.

Health conditions are good. Everyone works with enthusiasm, the morale is high, defeat is unthinkable.

With best wishes, sincerely,

U. R. WEBB.

#### CONCERNING AN EDITORIAL.

To the Editor:

I want to thank you for your little paragraph about the verb "to operate." "To operate" is "to work," and I have often thought when I have heard some of my confrères saying how they had "operated a patient" that they were unconsciously and in truth telling how they had "worked" him.

Very sincerely yours,

HARRY M. SHERMAN.

San Francisco.

#### SOMEWHERE IN FRANCE, NEAR WHERE THE CANNONS CAN BE HEARD,

January 29, 1918.

We are at present out in the woods getting back our health from the trip we had coming to this place. I wish now I had studied my French a little more before starting across. However, I am gradually learning the lingo. My teacher has just left on his gallant steed announcing that target practice is over for the day. They are all fond of American cigarettes and tobacco, these French soldiers that we come into contact with, quite often paying fabulous prices.

I have had cases of severe bronchitis, some measles, mumps, scarlet fever and bad colds; rheumatism, tonsillitis and a few operative cases for old troubles. The men got paid last night and were very happy as many had not received any for some months. The Red Cross has been very good to us, furnishing us with helmet caps, sweaters, socks, mufflers and wristlets. The Y. M. C. A. is doing lots for the soldiers and needs all the support you can give it. Have seen lots of country and strange sights which I hope to be able to tell you about in 19—.

If any of your friends happen to be coming across let me give you what I've found out personally: (1) Take along some magazines to read on the boat, as all may not have as good a library as we had on ours. (2) If they play cards, take some along, otherwise you pay dear for them. (3) Candy and gum must be taken. (4) Plenty of cigarettes and tobacco in general for smokers. (5) You can get better exchange for your money at the Y. M. C. A.'s most all the time. (6) Take plenty of changes of wearing apparel and have it handy as you may be separated from your luggage and it may be lost for some time. (7) Watch your luggage as much as possible, as you may have it at the end of your trip, not otherwise. (8) Learn your value of your new money so as not to get stung. (9) Baths are hard to get at times. (10) Eats, you will have to change your idea a whole lot. (11) Breakfast, they have the blackest of black coffee. (12) Milk is seldom partaken of if you believe in "safety first." (13) Sleeping accommodations are—sometimes you do and sometimes you don't, but soon your hips become accustomed to the beds. (14) Candies are high. (15) Wines and other liquors are reasonable, only sold at certain hours to the military. (16) High leather boots are worn considerable, also rubber boots.

(Signed) G. B. WILCOX,  
162nd Infantry, Medical Depart.

#### SAN FRANCISCO POLYCLINIC WAR LETTERS.

##### Notes From Camp Lewis.

December 13, 1917.

Since coming to Camp Lewis my experiences have been wide. You know when a civilian enters the military the first thing they want to know is how to act. The acting will work if they know how to salute. This is particularly so if they have a uniform on. At first it was hard to pick a new-comer but now it is very easy. For instance a captain rushes up to you beaming all over, and saluting, wants to know where headquarters are and who is in charge. Immediately he is told to go to the Y. M. C. A. Building where Major Latrine holds forth, incidentally asking if he has an old umbrella. He will go and do as he has been told. Then about fifty men gather around for the fun. So much for the funny side of military life.

When first arriving in camp—the Masonic Ambulance Company from San Francisco,—and at that time known as Provisional Ambulance Company "B"—we were met by a Field Hospital Corps from Portland. If it had not been for them we would have probably starved. They fed our company for two or three days, got us located in tents and made us comfortable. After about six weeks of this we moved to the barracks which had recently been completed and stayed in there for about six weeks. We then moved to our permanent barracks in the sanitary trains.

The sanitary trains here comprise four ambulance companies, one of which is animal drawn and three motor drawn. Near the sanitary train is the Base Hospital, capable of holding 2000 cases. It has very fine equipment, is spread over a great area of ground, one-story wards.

The reservation here covers about 14,000 acres of maneuver ground. The barracks for the men will hold about 40,000 and are about three miles long by two miles wide. In regard to receiving instruction officers in Ambulance Companies must be able to command men, giving usual drill regulation, litter drills and command ambulance work, setting up stations, etc.

There are now several British and French officers in camp giving instruction in hand grenade, French mortar, rifle grenade and poison gas. Imagine men of Mendocino County putting on a gas mask in six seconds. The infantry are already passing through gas every day.

(LT.) RAYMOND A. BABCOCK,  
Ambulance Co. No. 364, 316 Sanitary  
Train, Camp Lewis, Wash.

##### From Dr. Sterling Bunnell, Secaucus, New Jersey.

Since the first of the year I have been stationed at Hoboken, New Jersey, the port of embarkation, awaiting the arrival of our San Francisco unit. Have been at first given the job of learning army hospital management. It is most exact but a very smoothly running system when working perfectly. I am now established in the Army Hospital, Secaucus, N. J., not doing surgery, but taking care of my share of the 350 contagious cases and acting as supply and property officer for the hospital. Lieut. Harold Fletcher of San Francisco is one of us and there are but four of us doing the medical work of the hospital.

Recently I saw at the Rockefeller Institute, Dr. Fred Allen of San Francisco carrying out his exhaustive experiments on diabetes. He has done a

tremendous amount of work. I also saw Dr. Jacques Loeb and he showed me his two dozen full grown fatherless frogs that he had produced by merely pricking the eggs. He also showed me aseptic flies that he had grown through forty-four generations aseptically. He finds that their longevity is not determined by bacterial flora as thought by Metchnikoff but is determined directly by the temperature. This temperature curve is the same temperature curve he finds that governs the degree of chemical reactions.

Have enjoyed meeting the members of the Stanford unit who were delayed in Philadelphia and New York because of their equipment going astray. It is a mighty good unit with many representative men in it.

**From Dr. Walter S. Johnson, Base Hospital,  
Camp Kearny.**

The Surgeon General's office at Washington assigned me to duty at the Base Hospital, Camp Kearny, in connection with venereal diseases, and I am in charge of this department. It is a very large service and the venereal incidence at one time was a gigantic problem. The great bulk of the work came before our base hospital was completed and a temporary hospital was under canvas. Supplies for carrying out our work had not arrived and the task of having to care for so many taxed the ingenuity of most of the medical and surgical staff.

My operating table was made by sawing a few two by fours for the legs, and twelve-inch rough floor boards for the top, the top being made somewhat trough shape to facilitate drainage. Instrument tables were made of the same material, as were benches, desks and other furniture necessary for operating or treatment.

Our methods of sterilization were also very crude. Alcohol stoves were furnished and a new tin wash basin made a very good boiler for instruments. Towels soaked in bichloride were the only means of protecting the field of operation. God was good and strange to say, infection was not known. Under these adverse conditions, two hundred complicated cases were in the department as bed patients and we were treating three hundred and fifty in the outclinic Genito-Urinary Department daily, with a medical personnel of six reserve medical officers. Our nurses and hospital corps were men fresh from the ranches, which means that they were raw recruits.

At the present time we are housed in our new Base Hospital and we are getting supplies continually and will probably get more when they cut out some of the army red tape.

The work means long hours, hard, but very interesting work and our experiences are making us fit for any service. Many of us look back to those independent days of civil practice longingly, but the watch word is play the game and play it with the best that is in you.

**From Dr. Bruce Ffoulkes, Camp Funston, Kansas.**

I arrived M. O. T. C., Fort Riley, Kansas, on June 1st. There was no one at the station to meet us as guide, so we wandered around the post trying to orientate ourselves. We found that we were in a reservation of 22,000 acres. The distance of a mile between buildings was the rule rather than the exception. After lugging our suit cases and overcoats for about two hours, incidentally on account of the heat, our white collars were warped and our personal appearance generally mussed up, we located the Adjutant's office, at which we registered.

They registered our name, age, specialty, pre-

vious service, if any, maiden name of any female relative in case of homesickness, name of our grandmother's special brand of fruit, and who to ship the remains to in case of sudden death. This being concluded, we were directed to walk north and east about two and one-half miles to our quarters. On arriving at above named quarters, we found it to be a large, two-story, stone building of imposing aspect with windows and doors barred with three-quarter inch iron bars. Inquiry brought forth the information that the building was the Artillery guard house, temporarily turned over for the use of the Medical Officers in training until the cantonment would be built. Imagine the awaking, when we expected two or three rooms and bath to find we were to occupy this building containing two large rooms of about one hundred by thirty feet with cots placed as close together as the dormitory of a girls' seminary.

Doctors began to arrive in twos and threes all morning until about noon there were thirty of us. About 11:30 that same morning a very soldierly First Lieutenant of the Medical Corps came among us and announced that 1 p. m. everybody was ordered to appear at the Infirmary. At the appointed hour we presented ourselves, were physically examined, vaccinated on the right arm and shot full of typhoid prophylactic in the left, then nonchalantly told, as it was Saturday, we had nothing to do until Monday morning. It was a good thing as by the next morning every one of us was sicker than a poisoned pup.

Monday morning reveille sounded at 5:15, and at 5:25 the roll was called. From that time on we worked from 5:15 a. m. until 10 p. m. You can imagine our feelings to be awakened at 5:15 a. m. when most of us had been in the habit of having breakfast in bed.

Monday morning we started to be taught according to the rule of the camp, every hour being taken up by recitations, study or exercises. We were taught making our own beds, drills, setting up exercises, army regulations, manual of the Medical Department, manual of court martial, paper work of the medical ordnance, Quartermaster Departments, sanitation, map making, tent pitching, incinerator construction, latrine construction, etc., ad finem.

The course of instruction extended from June 1st until September 1, 1917. After our company of doctors arrived, in all eighty-nine, which was designated Company I, the first jolt we received was to be formed into a regular company. The two major surgeons being designated the captain and lieutenant of the company, and seven sergeants and seven corporals, and the rest of the company privates. Yours truly was appointed first duty sergeant. It was quite a come down to be stripped of our rank and be known only as sergeants, corporals, and privates. My work started in by organizing a complete company and then after organization to teach the other medical officers of the different companies the duties of a medical officer in the field. By the first of July we had six companies of doctors and new companies were arriving about every ten days. When I left the training camp in September there were fourteen companies of about a total of 2000 doctors. I might say right here that the men who responded to the country's call were not young men, but middle-aged. The average was 39 years. This should make the younger men hang their heads in shame. What we need badly even today is young men in field service especially, for it takes young, vigorous, physically fit men to do the work they are called upon to perform. The eighty-ninth Division is commanded by Major General Leonard Wood, a fine officer, one who is loved by officers and men alike. We all take pride in the eighty-ninth and when we go over seas, expect to give a good account of ourselves.

## State Society

### PAYMENT OF DUES.

#### Keep the Man at the Front in Good Standing.

The 1918 dues should be readily collected this year, as we believe there is no valid excuse for any delay. We wish to call attention, however, to the very important matter of every County Society making unusual efforts to keep the members at the front in good standing by paying their dues for them. This appears to be the custom in many places throughout the country.—Journal of the South Carolina Medical Association, Jan., 1918.

### DUES OF MEMBERS IN SERVICE.

There seems to be considerable misunderstanding concerning the recent ruling of the Council in the matter of dues from members who have entered military service. The resolutions in question were the result of repeated calls on the part of County Societies for suggestions from the Council.

Due deliberation was given the matter in Council meeting. It was fully recognized that these men who joined the colors were doing a heroic duty, and the State and County Societies are under obligation to them. All honor is due them for their sacrifice. The practical question still remains, however: What is to be done about their legal defense, their parent organization?

Malpractice suits will still be filed against our members regardless of their national service. Two years after having rendered medical service they may be sued, and must be protected. Their defense depends upon the continuance of their membership. Legal defense costs money. The Government will not protect them.

It is as important to keep up legal defense as it is to keep up fire insurance or to pay taxes. The money spent is insignificant compared with the benefit bestowed, and hardly represents a sum greater than most men spend in one evening's entertainment.

One's obligations, moral, financial, and social, do not cease with his entrance into the military service.

The County Society is only given a suggestion for which it asked. It is only a suggestion, not a demand. It can make any arrangement for payment of dues that it sees fit. Several County Societies have donated these dues from its treasury. Other State Societies have dealt with this question in a similar manner; some have asked for full dues; some have exempted their members altogether, but have been reimbursed by the component organization.

The machinery of the State office should be kept running. Medical organization and fraternity are worth the price. Pay your dues in full, and prepare to return home in peace and happiness.

### DEL MONTE NOTICE.

Tickets will be on sale for the going trip April 14th to 18th incl., 1918.

Certificates will be honored for return, April 16th to 20th incl., 1918.

Tickets may be sold to either Asilomar, Del Monte, Monterey or Pacific Grove, and certificates will be honored at either Del Monte, Monterey or Pacific Grove, Cal.

The name of the Joint Agent who will sign and verify the certificates is Mr. B. F. Wright, Agent Southern Pacific Company, Del Monte, Cal.

Railroads who will honor tickets (get receipt certificates): A. T. & S. F. Ry.—Coast Lines; Northwestern Pacific Railroad Co., The Salt Lake

Route, Southern Pacific Co., The Western Pacific Railroad Co.

Through tickets must be purchased at initial point in order to secure the benefit of the one-half fare returning.

Tickets must be purchased both going and returning on the authorized dates only.

Obtain from the Ticket Agent a receipt certificate when purchasing a ticket for the going trip, and secure a separate receipt for each ticket.

Where meeting is held at Del Monte, Monterey, Pacific Grove, or Asilomar, tickets may be purchased to either of these points and receipts will be honored at either place.

Receipt Certificates will be honored for "return" for continuous trip tickets ONLY, and only to the original starting point.

Where tickets cover passage locally, the return trip must be over the same route as going trip, or via any other route between starting point and destination authorized by tariff of issuing line.

Where tickets cover passage over two or more lines, the return route must be via the same lines and junction points as the going trip.

Each certificate must be properly filled out, signed by the Secretary of the meeting and stamped and verified by the Joint Agent.

Each certificate must: (1) Show that ticket for going trip was purchased for passage on an authorized sale date and at a station from which special fare is authorized. (2) Be presented to Ticket Agent at place of meeting (or other authorized point) for purchase of return trip ticket on an authorized date of sale.

All certificates must be presented to the Secretary of the meeting for his (or his assistant's) signature. The Secretary will then present all certificates, but not less than fifty (50), to the Joint Agent for verification, signature and official stamp. The Joint Agent will then return the certificates to the Secretary of the meeting for distribution to original holders. The minimum attendance required at each meeting, for which excursion fares on the receipt-certificate-plan will be accorded is a total of fifty (50) delegates or attendants holding receipt certificates—except that for conventions in the States of Oregon and Washington, a minimum of one hundred (100) delegates is required.

All Agents are supplied with receipt certificate form blanks.

All certificates must be presented to the State Secretary for his signature at registration desk.

### COUNCIL MEETING.

At the 100th meeting of the Council, held March 16th, the question of dues from members in National Service was discussed at length.

It was the universal feeling that these men should be exempt from dues and that they should be given full protection with all the benefits of organization during their absence.

After deliberation the matter was left in the hands of the Publicity Bureau with instructions that the various County Societies be circularized; that delegates be given instructions to consider the many problems of the situation, and that the recommendation of the Council is that members in Military and Naval Service be unqualifiedly exempted from dues.

The question of reducing the running expenses of the Society was taken under advisement. Strict economy has been practiced in all departments, but legal protection and the Journal publication are the two big items of importance which can not be eliminated.

Other organizations have been investigated concerning their war policy, and data on this subject will be presented to the Delegates at Del Monte.



**NOTICE.**

Congratulations to the County Secretaries for their good work in getting in 1918 dues.

**SECRETARIES OF COUNTY SOCIETIES**

are invited to attend a secretaries' dinner at Hotel Del Monte, April 16, at 6 o'clock. At this time various subjects of importance will be discussed with the State Secretary, Dr. Saxton Pope. Further notice will be given at the hotel.

**County Societies****ALAMEDA COUNTY.**

Focal infection was the subject discussed at the bi-monthly meeting of the Alameda County Medical Association held on the evening of February 4th. A paper on "The Hidden Cause" was read by Dr. Walter R. Hughes. The doctor illustrated his paper by a number of lantern slides and brought out many interesting points in regard to the teeth as foci of infection. Dr. H. G. Chappel, Dr. A. O. Wright and others discussed the paper.

Dr. A. Galbraith gave a brief talk on the tonsils and areas in the nose and accessory sinuses as locations from which infection may be spread through the system.

Dr. Strietmann, who was to have considered the subject from the standpoint of the internist, was unable to be present.

Members of the Alameda County District Dental Society were guests of the Association.

The Merritt Hospital Staff Council of the Samuel Merritt Hospital of Oakland held its annual meeting February 18, 1918. The following officers were elected: Dr. A. Galbraith, President; Dr. Sarah I. Shuey, Vice-President; Dr. R. A. Glenn, Secretary-Treasurer. Refreshments were served and a social evening was enjoyed by all.

The regular monthly meeting of the Alameda County Medical Association was held on Monday evening, February 18th. Instead of a scientific, a more or less popular program was presented, the meeting taking the place of the annual banquet. Dr. T. W. Huntington of San Francisco spoke of his experience on the Italian battle front with the Red Cross. Mr. W. J. Wheeler gave some selections from the "Rhymes of the Red Cross Man," by Robert Service; and Captain Goord, of the British Army, gave some of his experiences on the French front. Following these very interesting talks a buffet supper was served.

The annual meeting and banquet of the Alameda County Anti-Tubercular Society was held at the Hotel Oakland, Oakland, Thursday evening, February 28th. Aside from it being a successful social function the reports of the officers show that the society is steadily growing and that much good work is being done. The following members were elected to serve as officers for the ensuing year: Dr. Chas. E. Snook, President; Mr. Harrison S. Robinson, First Vice-President; Mrs. Allen G. Freeman, Second Vice-President; Mr. Fred B. Taylor, Treasurer; Miss Annie F. Brown, Secretary. The Executive Committee consists of Mr. Fred Kahn, Dr. A. S. Kelly, Rev. Chas. L. Kloss, Mrs. F. C. Turner and Dr. Edward von Adelung.

**LOS ANGELES COUNTY.****Los Angeles County Medical Association.**

Meeting Feb. 7, 1918, with the president, Dr. Wm. Duffield, in the chair.

The following resolution was adopted:

Resolution—In re Contract Practice in Industrial Compensation Work.

(Note—The following resolution was presented by the Special Committee sending out the ques-

tionnaire post-card, and has been adopted by the Board of Councilors, subject to ratification by the Society at one of its meetings.)

Whereas, At the Santa Barbara meeting of the Medical Society of the State of California, at which was adopted the minimum fee table for industrial accident work, it was agreed that this work should be carried on between every public or private insurance company, and an attending surgeon, upon the basis of an individual bill, rendered as per the above referred to minimum fee table; and that no contract agreements, either direct or indirect, whereby this agreement would be violated, in that a lesser fee would be accepted, would be allowed by either the State Medical Society or any of the public (state) or private insurance companies; and

Whereas, The recent referendum vote of the Los Angeles County Medical Association, as published in the November 15, 1917, Bulletin of the Society, clearly showed by a very large majority, that the members were in full accord with the Santa Barbara State Society agreement; now therefore be it

Resolved, By the Board of Councilors of the Los Angeles County Medical Association (the Association in general meeting ratifying the same on.....), that any violation of the Santa Barbara State Society agreement, as outlined above, shall automatically subject the member who does so to such disciplinary measures as in the judgment of the Ethics Committee and Board of Councilors seems proper (as per the disciplinary code printed in the State Journal of January, 1918, page 53).

Dr. W. H. Browning spoke on Thrift Stamps.

"A Symposium on Brain Injuries" was introduced by Dr. Eliot Alden with "Surgery of Brain Injuries":—

"In head injuries surgery can accomplish only three things:

"1. Prevention of infection in compound fractures.

"2. Remove local irritation from spicules of bone or foreign body.

"3. Relieve intracranial pressure.

"The first two need no special discussion. The third is equally important and more often overlooked.

"Intracranial pressure first stimulates then paralyzes cerebrum first, medulla last. The blood pressure rises to overcome the intracranial pressure and relieve cerebral anemia and is conservative. Passive congestion of the optic disk occurs early and is probably purely mechanical. With congested disk and rising blood pressure, operate with a view of relieving intracranial pressure before the paralytic stage sets in. The process is mechanical. The cerebral pressure is increased which interferes with the return flow of blood from the eye causing the passive congestion of the disk. The blood pressure rises to force blood against the increased pressure. A decompression relieves the pressure and accompanying symptom."

Dr. A. L. MacLeish discussed the ocular findings in fracture of the skull.

He pointed out that in many cases the clinical signs of localized hemorrhage may be absent, and that valuable time is wasted in waiting for their development. In the case of basal fracture blood may be effused into the orbit, or certain of the ocular nerves, particularly the third or sixth, paralyzed by the pressure of effused blood. Early in the case we may find marked dilatation of the retinal veins, with a beginning consecutive oedema of the retina, which more or less blurs the fundus-detail. This is purely a circulatory disturbance, due to interference with the outflow from the retinal veins.

With the passing of the primary shock, some six hours after the injury, the pulse falls, the blood pressure rises, and fresh extravasation takes place, or fresh and unduly increased secretion of cerebrospinal fluid; and now appears a sign more ominous,

in that it indicates a rise in the intracranial pressure; the optic disk begins to show a superadded edema of its own. Its nasal margin becomes blurred, later also its temporal margin, and soon the whole disk-surface becomes obscured, and its detail lost. Later this develops into a definite measurable papilloedema, or "choked disk," the rate of development of which depends on the rate at which the intracranial pressure rises. During the stage of recovery from shock repeated ophthalmoscopic examinations must be made, so as to observe the earliest appearance of rise of intracranial pressure. This is not to be done in a casual manner, but carefully and deliberately, using always, because it can be done with a minimum of disturbance of the patient, and with the greatest ease to the examiner, the electric ophthalmoscope. Difficulties arise which must not be allowed to act as hindrances, because the accurate observation of the condition of the eyegrounds is all important as a guide to treatment. Should the condition of the pupils be a bar to accurate observation, they must be dilated, using euphthalmine instead of one of the stronger mydriatics, so that the dilatation may be only transient, and the pupillary signs be only temporarily abolished. Jactitation may be a serious hindrance; if not controlled by morphine, a few whiffs of chloroform (not ether in such a case) will overcome it sufficiently to enable an observation of the eyeground to be made.

Simultaneously with the appearance of the ocular signs of increased intracranial tension there will be found also a rise in the pressure of the cerebrospinal fluid, as determined with the mercurial manometer at lumbar puncture. Puncture should at once be made on discovery of the ocular signs, but cautiously, and with the withdrawal of only a small amount of fluid, especially when the pressure is much raised, the danger being that, with too great relief below, the medulla and pons may be driven into the foramen magnum and choked.

During the whole stage of recovery from shock the pulse and respirations should be carefully watched. As the pulse descends from 120 to 100—90—80—70—60, repeated ophthalmoscopic examinations should be made. If these show increase in the signs of intracranial pressure, the clear inference is that the lowered pulse-rate is due to medullary compression, and the danger-signal of impending medullary oedema is already hung out. Now is the time for operative interference by way of subtemporal decompression. Earlier, in the stage of shock, the added shock of operation is unwarranted; later, when the rapid rise of the pulse indicates the onset of medullary oedema, operation is admittedly too late. I would earnestly insist that when, with a falling pulse, we find the earlier indications of increased intracranial pressure—blurring of the disk and its margin—and lumbar puncture gives an actual measurement of the amount of increase, decompression should be promptly done. To wait until "choked disk" appears, is not only to lose the most favorable time for a successful operation, but to run the risk of post-traumatic conditions of depression and instability, the sure resultants of prolonged unrelieved intracranial pressure. Operation with these as the end results is no triumph; it is a veritable disaster.

(Continued next month.)

#### Doctors of Los Angeles County.

The associate editor of the California State Journal of Medicine, representing the Los Angeles County Medical Association, herewith respectfully requests your kind cooperation by sending him all news of medical men and events of interest to the profession in our section of California. Especially does he wish to get every first day of the month a short report from the secretaries of the different branches and sections of our society. The reports should be typewritten and double spaced. As necrologist for the society he should also receive no-

tice of the death of any member, giving history, picture, and names and addresses of three or four best professional friends in good standing who would write fifty-word eulogies of the deceased for the Bulletin and the bereaved family. The news for the California State Journal of Medicine will be appreciated by all the members who read the same and will relieve the L. A. editor of a great deal of work and worry for which he receives no remuneration. Address Dr. Wm. Wenzlick, 628 Auditorium Building, Los Angeles, Cal.

#### Eye and Ear Section.

The January meeting of the Eye and Ear Section of the Los Angeles County Medical Association was held at the offices of Dr. A. L. Kelsey.

Dr. J. H. McKellar reported a case of cataract in a girl of eight years following chicken pox. The second case was a burn of the eye.

Dr. Ross Harris reported and showed a case of albinism in an Armenian. Vision is only 10/70 in each eye. The second case was one of vernal conjunctivitis persisting through the year.

Dr. George Lund reported a case of carcinoma of the nasopharynx in a woman of sixty, which was removed by means of a large adenotome. Post-operative packing was held in place by silk sutures fastened to the cheeks with adhesive plaster.

The regular monthly meeting of Pasadena Branch, Los Angeles County Medical Society, was held at the Pasadena Hospital, Tuesday evening, February 12, 1918.

Subjects: Observations on Anesthetics, by J. M. Wilson, M. D.; discussion by Mary Hagedorn, M. D.; Surgery of Gall Bladder, by H. H. Sherk, M. D.

The Santa Monica Bay Branch held no meeting in February. Six of our members have joined the colors, which makes quite a hole in our ranks (we have only fourteen or fifteen members), and the rest of us are unusually busy; so the outlook for good medical meetings is bad. But I will report what we do.

Dr. Henry B. Stehman, age 66 years, died in Pasadena, Feb. 17, 1918. He received his degree in Jefferson Medical College, Penn., 1877. He was the founder of the Lavinia Sanatorium at Altadena, and is survived by the widow, a son and two daughters.

Dr. Edward Arbo Trommald died Feb. 17, at the age of 53, in Long Beach, from an attack of appendicitis. He practiced his specialty of eye and ear in Long Beach. He graduated from the Cooper Medical School, San Francisco, in 1894, and is survived by his widow and a brother practicing in Portland, Oregon.

Dr. James W. Shaul died shortly after cranking his automobile Feb. 21, at the age of 45, in his home, 1342 Elza Avenue. He was a graduate of the Buffalo Medical School and was on the teaching staff of the Postgraduate Medical School of Los Angeles. He leaves a widow and a married daughter.

Dr. J. Allen Osmum, age 64 years, died at Whittier of heart trouble, Feb. 25. He was a banker, capitalist, and citrus project promotor, and a close friend of Thomas A. Edison. He leaves a widow and four sons.

Dr. Oliver W. Butler of Los Angeles was ordered for active duty on Feb. 7, to go to North Island, San Diego, and from there to France.

Dr. Ralph W. Smith of Los Angeles, and Mariana de la Torre, a native of Spain, are going to be married; a license was secured Feb. 9.

Dr. Karl L. Dieterle is back at the Receiving Hospital as assistant surgeon, Feb. 10. He is in the Medical Reserve Corps of the Army.

#### Physician and Guests in Auto Accident.

Dr. Philip B. Riggins, head of the Santa Fe Hospital, accompanied by guests, was struck by a Pacific Electric San Pedro car on Slauson Ave., near Long Beach, sustaining a possible fracture of the skull, concussion of the brain, the knee cap, and cuts about face and arms.

#### Runaway Auto Hurls Doctor Into Window.

Dr. John A. Saffa was seriously injured, Feb. 12, when an automobile bounded over the curb on South Broadway and struck him. Hurling through a plate glass window, he suffered two broken legs and a possible fracture of the skull.

Dr. C. W. Rand (Feb. 12) received orders from the Surgeon-General to report at the Neurological Institute, New York City, Feb. 18, for a course of intensive training in head surgery. He is a member of Base Hospital No. 35, which unit he is to rejoin later.

Dr. W. Harold Wickett was commissioned as captain in the Medical Corps, Feb. 12. He had just returned from a two-months' trip East and expected to leave for France within a fortnight.

Dr. Robert B. Hill, pathologist and bacteriologist of Los Angeles, has left (Feb. 13) for San Francisco, where he will enter the Letterman General Hospital at the Presidio.

#### New Hospital for Los Angeles Homeopaths.

Under the auspices of the Homeopathic Society at a monthly meeting in the Hotel Alexandria, this possibility was considered. In order to accommodate the ever increasing number of patients who would rather be treated in hospitals than at home, Dr. Myron W. Adams, of Rochester, N. Y., suggested to establish homeopathic hospitals. Dr. F. S. Barnard announced that plans to that effect would be worked out by the society. He also stated that the mortality among the wounded in the present war was far below that of any previous one, due to modern methods of surgery. Dr. Charles S. Salisbury spoke of the work accomplished by the Maternity Cottage and Homeopathic Hospital on Mateo Street. The next meeting will be held March 12, when Dr. T. C. Low will read a paper on "Effect of Shell Shock on the Nervous System." Dr. George H. Martin presided.

#### Los Angeles Red Star Leads U. S. in Contributions.

The local chapter of the American Red Star Animal Relief Society is the largest in the United States, having raised during 1918 \$10,007.14. Chattanooga, Tenn., is second with \$5,033.75, and New York third with a little over \$2000, for carrying on the humane work among dogs and horses as per headquarters at Albany, N. Y., Feb. 14. Mrs. Claire Hosler Coombs, in charge of the L. A.

#### Barlow Sanatorium Requests Contributions.

The Barlow Sanatorium Association announced Feb. 14 that it needs funds to carry on the work of caring for incipient cases of tuberculosis who under supervised treatment are able to resume their industrial activities. The cost of each patient averages \$10 a week, but \$5 a week is the charge made to patients, the remainder of the sum being raised through voluntary subscriptions. Forty dollars will care for a patient for eight weeks, the period for revigoration. The emergency fund is not considered as charity money. Reconstruction or prevention are factors in this social service work and sickness should be checked rather than the sick shall become a burden to the community. Contributions may be made in care of the Social Service Commission, Normal Hill Centre.

#### Red Cross.

The home nursing and first aid department of the Los Angeles Red Cross Chapter is fast becoming

one of the most significant parts of the mercy organization's war work. It has prepared several score women for service as nurse's aides. Several hundred women have completed the course of home nursing and are now (Feb. 14) ready to serve in emergency cases. New classes are being organized when necessary, and every one is urged to take the courses.

Over 300 auxiliaries and branches have been formed here, with more than 25,000 active workers.

#### Woman Appointed Food Director for Los Angeles Zone.

Mrs. Elizabeth Mumford of South Pasadena is made head of Los Angeles County. She is closely identified with Red Cross work and women's club affairs in Los Angeles. Mrs. J. T. Anderson also was appointed in a like capacity for the city of Los Angeles. Thirty-nine other women as food directors are to co-operate with the various county food administrators throughout the state, and in eight of the larger cities, and were announced in San Francisco by Mrs. Robert J. Burdette, chairman of the board of women's work in food conservation for the State Food Administration.

#### Southland Doctors Slow to Register.

H. J. Castellaw, in charge of the Los Angeles office of the State Board of Medical Examiners, says that many physicians of Southern California have failed to comply with the law providing for registration of all licensed practitioners in California. Only about one-half have registered their names, address, and license numbers, or have paid their fee of \$2. The law was framed to defray expenses of compiling and publishing a directory of all licensed physicians in the state, and providing each registrant with a copy, for the purpose of checking misrepresentations of unlicensed practitioners. Registration is required each year on or before Jan. 1. Sixty days of grace have been provided for physicians not acquainted with the requirements. Notices have been sent to physicians through various medical associations, but many claim not to have received any. The fee of \$2 should be paid to Charles B. Pinkham, M. D., Secretary-Treasurer of the Medical Board of Examiners, in Sacramento.

#### Medical Standard to be Raised.

At a meeting of the State Board of Medical Examiners for 1918 at Fraternal Brotherhood Hall Feb. 21, assurance was given that medical imposters would be suppressed and the standard of medical practice advanced. Those of the board present were: Drs. Harry E. Alderson, San Francisco; H. V. Brown, Los Angeles; Robert A. Campbell, William R. Molony, Los Angeles; Percy T. Phillips, Santa Cruz; Charles B. Pinkham, San Francisco; Ernest Sisson, Oakland; D. L. Tasker, Los Angeles; A. M. Smith, Oakland. H. J. Castellaw, special agent for the board, announced the revocation of licenses held by William S. Card, San Francisco; T. F. Glass, Los Angeles; George Ball Rowell, San Bernardino.

#### Nurses' Home on Hospital Grounds.

The Ebell Club, Friday Morning Club, the Cosmos, and other club organizations, with the co-operation of the Social Service Commission, have adopted resolutions condemning the proposed plan of the supervisors to purchase and adapt the old osteopathic college for a nurses' home. Letters have been sent to individual supervisors urging them to erect a modern, fully equipped home, inside the hospital grounds, and not to waste the county's money to purchase and alter a totally inadequate building away from the hospital property. Superintendent Norman Martin of the County Hospital asked the supervisors for \$200,000 for a new home and admitted that 160 nurses, 82 of whom are pupil nurses, are improperly housed, that the



home has only 48 rooms and 93 nurse occupants. Outside of the crowded home 45 nurses sleep in the psychopathic dormitory, 5 in the observation cottage, 22 in the library dormitory, 2 in the library room, 5 in the Sichel street cottage, 10 in the contagion pavilion and 2 outside the hospital. The taxpayers could be saved \$5000 a year by having a nurses' home that will attract pupil nurses and thus save the very much higher rates of so many more graduate nurses.

#### Los Angeles County Hospital News.

A new service building at County Hospital is rapidly nearing completion. This building consists of five stories and will be used for kitchen, dining rooms, and storerooms. New kitchen equipment will be used of most modern kind. It also will give us room for making more wards in the hospital, which are greatly needed because our patients are rapidly increasing. We must have more ward space.

Several members of Los Angeles Army Base Hospital No. 35 are getting notices to report for duty at various camps. Eight nurses of same unit also have left for service in various camps.

#### Hospital Unit Chief in Los Angeles.

Dr. J. A. Danna, director of United States Base Hospital No. 102, arrived Feb. 21. He is chief surgeon of the Charity Hospital in New Orleans and occupies the chair of surgery at the Loyola Post Graduate School of Medicine in New Orleans. He is organizing an army hospital unit authorized by the Secretary of War for service in Italy. The organization, which has been endowed by Mrs. John Dibert of New Orleans, who subscribed \$100,000, will be regularly enrolled Red Cross unit and known as the Loyola University unit. The unit will consist of a total of 251 officers, nurses, civilian employees and enlisted persons. Of 64 nurses, 10 will be Sisters of Charity. Dr. T. Chalmers Myers escorted Dr. Danna as guest to the Sisters' Hospital, where those qualified to become members may obtain information.

#### Civil War Surgeon at Grandchild's Wedding.

Dr. J. C. Schoonover, 94 years old, celebrated at his home, 220 No. 4 Street, Sawtelle, the wedding of his granddaughter, Mrs. Hattie F. Prall, and Allen E. Harden, both of Goldendale, Wash.

#### To Aid French Children.

Dr. R. C. Whitlock, who had charge of various departments of charitable medical work for children, will leave for France, to do special work in the recently organized Child Welfare Department in France. He volunteered last year and has been waiting orders.

#### Doctors Asked to Join Medical Corps.

Registrar David B. Lyons, secretary of the County Council of Defense, appeals for volunteers in a volunteer medical service corps to do home communities medical, surgical and sanitary work that the Medical Officers' Reserve Corps does for the Army. The demands incident to examination of drafted soldiers, including the reclamations of men rejected because of comparatively slight physical defects; the need of conserving the health of families and dependents of enlisted men and the preservation of sanitary conditions, must be met in spite of the great and unusual depletion of medical talent due to demands of field and hospital service.

Physicians wishing to join the corps should write to the secretary of the central governing board of the general medical board of the Council of National Defense for applications. An appropriate badge is to be adopted as official insignia.

The Aviation Section of the Signal Corps has an examining unit composed of about fifteen leading specialists, otologists, ophthalmologists, internists, etc., in each of forty large cities in the United States. The Los Angeles examining unit is established in the Post-Graduate Department of the University of California (Los Angeles Branch), No. 737 North Broadway. It is in charge of Capt. A. N. Bobbitt, M. R. C., and Lieut. C. G. Stivers, M. R. C. Since its opening in October, 1917, there have been over eight hundred candidates for Aviation examined. Over one hundred operations for correction of deviated septum, diseased tonsils, adenoids, etc., have been performed by the examining physicians free.

#### Winnipeg Red Cross Wants Hospital in California.

March 6—Frederick M. Ryder, American Consul-General at Winnipeg, Manitoba, Can., has written to Secretary of State Jordan that the Canadian Red Cross is desirous of establishing a convalescent home in California for wounded soldiers. The State Board of Health will request the California Red Cross to act at once, as 25 men are ready to come, and 100 during the winter. The cost will be borne by the Red Cross, except salaries of the medical officer and nurses.

March 7—Captain Thomas J. Orbison of Pasadena was ordered to report at the Letterman General Hospital, Presidio, San Francisco, for special work in neurology.

#### MARIN COUNTY.

On February 21st the Marin County Society met and elected officers for 1918: Dr. H. A. Howitt, president; Dr. W. F. Jones, secretary and treasurer and associate editor. Dr. J. H. Kuser was elected delegate to the State Society, with Dr. L. L. Stanley and Dr. A. H. Mays alternates. Three of our members have been called to the colors, Drs. W. J. Stone, L. H. Anthony and R. J. Dufficy, and another member, Dr. O. P. Stowe, is on the waiting list, having received his commission.

#### MENDOCINO COUNTY.

A regular meeting of the Society was held at Hotel Willits, Willits, on Saturday evening, February 9th.

The president, Dr. G. W. Stout, called the meeting to order. Present: Drs. G. W. Stout, H. O. Cleland, F. G. Gunn, F. S. Baxter and O. H. Beckman.

Minutes of previous meeting read and approved. A letter from the Senior Medical Examiner, U. S. Naval Hospital, Mare Island, California. A letter descriptive of camp life at Camp Lewis, Washington, from Lieut. Raymond A. Babcock. Other letters.

Dr. F. G. Gunn started the scientific program by describing "Recent public health work in Willits." The Doctor dwelt especially on the difficulty of keeping track of the contagion carriers, particularly so of those who—although not themselves sick—harbor the diphtheria bacillus, making it very difficult to stamp out that disease. He reported 19 cases of diphtheria, five of typhoid fever, innumerable of parotitis, with some cases of scarlatina and measles. The discussion was general and interesting.

Next Dr. Frank S. Baxter read comprehensive and very enlightening research notes on "Legislative Control of Venereal Diseases." This subject was generally discussed and many interesting and instructive points brought out.

Dr. H. O. Cleland described and discussed the Caesarean section he was to perform the following morning at the Laugland Hospital, Ukiah.

Dr. Lew Knapp Van Allen, Ukiah, was elected to membership.

A lunch followed the adjournment. The Willits

fraternity were the hosts and while discussing the palatable eatables the utmost goodfellowship prevailed.

On Sunday morning at the Laugland Hospital, Ukiah, Dr. H. O. Cleland, assisted by Drs. S. L. Rea and F. S. Baxter, with Dr. L. K. Van Allen as anesthetist, performed Caesarean section on a patient who had congenital dislocation of both hip joints and whose pelvic measurements absolutely contra-indicated any other method of delivery. The child—a boy of  $7\frac{1}{2}$  pounds—was delivered in 90 seconds. The whole operation was completed—both fallopian tubes resected and all suturing finished, to the last horsehair one of the skin—in 27 minutes.

The mother reacted well to postoperative treatment and at this writing is doing well, nurses her baby and has an abundance of milk.

#### News From Our Medical Volunteers.

Lieut. H. H. Wolfe expects to stay at Allentown, Pa., for some time to come.

Lieut. Raymond A. Babcock has been ordered to the Presbyterian Hospital, Chicago, according to the A. M. A. Journal.

Asst. Surgeon R. H. Hunt, U. S. N. R. F., has been transferred to the New York Navy Yard, New York, N. Y., where he is doing duty on the Receiving Ship. "That is the name they give three buildings and two big Hudson River boats. Every man who is ordered to the Yards or to New York has to come through the Receiving Ship, it makes a great deal of work and it is very interesting. Quite often we have whole crews of ships that have been in action over on the other side. Just yesterday we reenlisted quite a number from the destroyer "Jacob Jones" that was lost a little while ago. I think that it shows that many of the men have the proper stuff in them when they want to reenlist after they have had the strenuous time that those boys have had."

#### ORANGE COUNTY.

At the meeting of the Orange County Society on February 28th, the following officers were elected: President, Dr. W. W. Gatliff; vice-president, Dr. D. L. Martin; secretary-treasurer, Dr. F. M. Lawson; associate editor, Dr. W. H. Walker. Meetings will be held bi-monthly.

#### SAN FRANCISCO COUNTY.

##### Health Department Request.

The Health Department is desirous of impressing the members of the Medical profession in San Francisco with the importance of reporting venereal diseases coming under their observation and care. The State and municipal authorities are making every effort to comply with the requirements of the Federal Government in preventing the spread of venereal diseases, and we would therefore ask if it would not be possible to give some little space in your valuable journal to this subject and urge upon the members of the profession the absolute necessity of reporting all such cases.

Attention is called to the necessity for saving the glass tubes furnished by the Health Department in the taking of diphtheria cultures. There must be a great many of these glass tubes scattered about the city as we can account for loss from breakage in our laboratory, but cannot trace many of these outfits that go out and are never returned. The price of these tubes has advanced in a very marked degree and in the interests of economy and conservation we would request that you call the attention of the profession to the necessity of returning to the Health Office all unused, old or unsatisfactory tubes now in their possession.

#### County Society Meetings.

During the month of February, 1918, the following meetings were held:

##### Tuesday, February 5th, Section on Medicine.

1. X-rays in the treatment of menorrhagia. L. H. Hoffman.
2. A case of abnormal thyroid disease; demonstration of patient. H. D'Arcy Power.
3. The cerebrospinal fluid in health and in disease. O. G. Freyermuth.

##### Tuesday, February 12th, General Meeting.

(Held in the new quarters of the Society, Medical Building, Bush and Hyde Streets.)

1. Address. John H. Graves.
2. The value of Roentgen rays and benzol in the treatment of polycythemia. Presentation of case. S. H. Hurwitz.
3. Demonstration of material from two autopsies:
  - A. Carcinoma of pylorus and of uterus; multiple arthritis.
  - B. Endothelioma of brain. E. V. Knapp.
 (Refreshments were served at the close of the meeting.)

##### Tuesday, February 19th, Section on Surgery.

1. Syphilis of bones. E. J. Casper.
2. Treatment of wounds with Carrel-Dakin and allied solutions. C. L. Hoag.
3. Selected surgical cases from service of Letterman General Hospital.
  - A. Mobile spleen simulating pelvic tumor. Diagnosed by exploration and followed by splenectomy. Consequent effects and consideration of unusual nerve findings. Presentation of specimen.
  - B. Liver abscess. Report of cases. Surgical technique. Unusual sequelae.
  - C. Thyroidectomy. Post-operative results. Consideration of selected cases. Consideration for surgical interference in Army work.
  - D. Syringomyelic signs shown in a case of cervical fracture. Treatment of the same. Case contrasted with signs and symptoms of a dorsal fracture and also with bayonet wound of skull. Major W. C. Chidester, M. O. R. C., Letterman General Hospital.

##### February 26th, Section on Eye, Ear, Nose and Throat.

1. Demonstration of cases. Hans Barkan and H. B. Graham.
2. New ideas from recent visit to Eastern clinics. H. B. Graham.
3. War, with reference to eye, ear, nose and throat service. J. J. Smith.

#### SAN JOAQUIN COUNTY.

The February meeting of the San Joaquin County Medical Society was held at the Chamber of Commerce Friday evening, February 15th. It was a joint meeting of the medical society and the San Joaquin Dental Association. The members of the society present were Drs. Margaret Smyth, C. R. Harry, R. T. McGurk, J. T. Davison, J. E. Nelson, Mary Taylor, S. W. R. Langdon, Fred Clark, D. R. Powell, with Dr. McClish of Stockton, Dr. Reamer of Modesto and Dr. Cross and Dr. Duff of Fresno as guests.

The paper of the evening was presented by Dr. Cross on "Tumors of the Mouth," illustrated by many interesting and instructive lantern slides. The paper represented a considerable amount of work done by himself and Dr. Bloodgood at Johns Hopkins University, and was greatly appreciated by the members of the medical and dental profession in attendance. Following the paper there was a general discussion from the floor, whereupon the meeting adjourned.

## Military News

A Navy Base Hospital, made up principally of physicians, nurses and enlisted personnel enrolled in the Naval Reserve Force from Stanford University Medical School, San Francisco, has reached the war zone, Secretary Daniels announced recently. This hospital has a capacity of five hundred beds, and will take care of many persons both ashore and afloat, and also will be available for army and allied sick and wounded.

### TUBERCULOSIS NEEDS.

At least 50,000 more tuberculosis hospital beds will be needed in the United States within the next two years to make possible the adequate control of the disease and check its tendency to increase its ravages under war conditions as it has in Europe during the last three years. This is the latest estimate of the National Association for the Study and Prevention of Tuberculosis. There are 43,000 beds available in the country at present.

This estimate is based on a revised conception of the prevalence of the disease as the result largely of the examination of recruits and drafted men for our new army and navy. Until recently it was estimated that for every death from tuberculosis in the country there were five active cases of the disease. It is now believed that the true ratio is twice or three times as great. Instead of about 1,000,000 active cases in the country there are probably between two and three million.

## State Board of Health

### MARCH MEETING.

The State Board of Health met in Sacramento on March 2, 1918. The following members were present: Dr. George E. Ebricht, president; Dr. F. F. Gundrum, vice-president; Dr. Edward F. Glaser, Dr. Adelaide Brown, Dr. Robert A. Peers, and Dr. W. H. Kellogg, secretary.

Professor W. B. Herms, Consulting Parasitologist in the Bureau of Communicable Diseases, was given leave of absence for the period of the war, beginning February 15, 1918. Mr. Stanley B. Freeborn was appointed as acting Consulting Parasitologist during Professor Herms' absence.

Dr. J. R. Snyder, bacteriologist in charge of the Northern Branch Laboratory, was also given a leave of absence during the period of the war.

Dr. John N. Force, Assistant Professor of Hygiene in the University of California, was appointed Consulting Epidemiologist in the Bureau of Communicable Diseases.

Upon the recommendation of Dr. H. G. Irvine, Director of the Bureau of Venereal Diseases, certain amendments to the Board's rules and regulations for the prevention of syphilis and gonococcus infections were adopted.

Upon the recommendation of the Director of the Bureau of Registration of Nurses, certificates were granted to two registered nurses through reciprocity. In accordance with the further recommendation of the Director of the Bureau of Registration of Nurses the nurses' training schools in connection with the following hospitals were placed on the accredited list for one year: Alameda County Hospital, San Leandro; Emergency and General Hospital, Los Angeles; French Hospital and the German Hospital, San Francisco; Redlands Hospital, Redlands; and the White Hospital, Sacramento.

Upon the recommendation of the Director of the Bureau of Sanitary Engineering, final permit for supplying water under certain conditions to the citizens of Watsonville was granted to the Watsonville Water Company. A similar permit was granted to the City of San Bernardino for sup-

plying water to the citizens of San Bernardino, from Lytle Creek. Upon the further recommendation of the Director of the Bureau of Sanitary Engineering temporary permits to operate swimming pools were granted to the City of San Jose, Commission of Public Parks and Buildings, Pasadena; Sequoia Resort Baths, Napa; and the Hotel Vendome Company, San Jose. Permit to construct sewers and interceptor at Hammonton was granted to the Hammon Engineering Company of San Francisco.

The license of the Mason Ice and Cold Storage Company of Lodi was transferred to the Union Ice Company of San Francisco. The name of the Lodi plant in the future will be the Lodi Ice and Cold Storage Company. Upon the recommendation of the Director of the Bureau of Foods and Drugs a license to operate a cold storage warehouse was granted to the Home Ice and Cold Storage Company of Long Beach. The report of the Food and Drug Inspection Committee was approved, following which a number of alleged violations of the Food and Drug laws came before the Board for hearing.

## New Members

Harrison, C. W., Loma Linda.  
McGill, Wm. B., Lancaster.  
Donaldson, Arthur N., Loma Linda.  
Rodgers, Spencer C., Watsonville.  
Castle, C. H., Gustine.  
Musgrave, W. E., San Francisco.  
Haviland, Clarence M., San Diego.  
Hutchison, C. W., Coalinga.  
Betts, H., Visalia.  
Sevenman, Geo. H., San Mateo.  
Campbell, Geo. F., Atascadero.  
Arnold, Mott H., San Diego.  
De Puy, E. S. Spence, Oakland.  
Hicks, J. R., Delano.  
Vowinkel, F., San Francisco.  
Michelsen, Lewis, San Francisco.  
Smith, Elmer W., San Francisco.

## Resigned

Coleman, B., Mokelumne Hill.  
Lorentz, Robert, San Francisco.  
Tyler, Leatha R., San Francisco.

## Transferred

Moseley, Gayle G., from San Bernardino County to San Francisco County.

## Deaths

Shaul, Jas. W., of Los Angeles; Univ. of Buffalo, '96; Univ. State New York, '96; aged 45; died February 22, 1918, from exertion of cranking his machine.

Metcalf, Olive B., of Oakland, Cal.; Calif. Med. Coll., '83; died in Oakland, Feb. 18, 1918.

Dawson, William J. G., of Eldridge, Cal.; Med. Dept. Univ. of City of New York; died at his home, March 4, 1918.

Trommald, E. A., of Los Angeles, Cal.; Cooper Med. Coll., Calif., '96; died at his home Feb. 7, 1918.

Powell, David, Marysville, Cal.; Med. Dept. Univ. of Pacific, '71; Cooper Med. Coll., Calif., '82; died in Marysville, Feb. 28, 1918.

Stehman, Henry B., Pasadena, Cal.; Jefferson Med. Coll., Pa., '77; died Feb. 17, 1918.

Whedon, Daniel Dennison, San Diego; Long Island Coll. Hosp., '05; has deceased, aged 39.